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WHAT EVERY EXTENSION WORKER SHOULD KNOW – CORE COMPETENCY HANDBOOK –

Process Skills and Competency Tools

WHAT EVERY EXTENSION WORKER SHOULD KNOW – CORE COMPETENCY HANDBOOK –

By Murari Suvedi and Michael Kaplowitz, Michigan State University

MEAS Handbook

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USAID FROM THE AMERICAN PEOPLE

MICHIGAN STATE UNIVERSITY

MEAS Modernizing Extension and Advisory Services

Process Skills and Competency Tools

WHAT EVERY EXTENSION WORKER SHOULD KNOW

– CORE COMPETENCY HANDBOOK –

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Preface

This handbook is designed as a reference manual for front-line extension staff to use in their day-to-day work. It offers a set of tools for effective communication, program planning and evaluation. It is meant to support and educate agricultural extension workers worldwide. The intended audiences of this handbook include: governmental agriculture, fisheries, natural resources and community development ministry officials; governmental and non-governmental extension district/regional managers; extension-related faculty and their students—preservice extension workers; and field-level agents, whether governmental, non-governmental or for-profit. We hope that this handbook will help advance efforts to empower and continue educating extension personnel through in-service training opportunities, continuing education programming and "train-the-trainer" programs. Such efforts may include targeting specific tools of interest to audiences and inviting scholars/practitioners to teach participants about them.

Agricultural extension and advisory services are transitioning from a focus on technology transfer to a focus on facilitating a range of interventions in complex contexts. No longer is extension first and foremost a conduit of innovations coming from research and passing them on to farmers. Today's agricultural extension and advisory services are being challenged to serve as the connecting actor in complex agricultural innovation systems. The role of extension in agricultural development is continuously evolving, and effective front-line staff members need skill sets that may differ from those they learned in school. Extension professionals must have an understanding of the communities they work in and have compassion for the people they serve. They should be well-versed in adult education principles. Besides sound technical knowledge, they must possess adequate knowledge and skill in participatory tools and techniques for planning, implementation and evaluation of extension programs. Good communication skills are critical in all aspects of their work. This handbook attempts to provide some tools and approaches that can help front-line extension staff do their important work.

Most of the process skills or tools in this handbook are grounded in communication, education, rural sociology and applied development science. These tools are valuable for the trainers of field extension workers. This handbook was created to help meet the need for a simple but comprehensive guide for extension workers that focuses on process skills and competencies. Our goal was to create a concise yet complete, easy to read, user-friendly explanation of some of the skills that extension workers need to help farmers improve agricultural productivity and to help create a sustainable and inclusive agriculture system through demand-driven and participatory approaches that have gained prominence in the past two decades.

Please note that neither the length of each tool's description nor its numeric order in this handbook is meant to convey the tool's importance, complexity or usefulness. Not all tools are equally useful in particular circumstances. Furthermore, some complex and powerful tools are easier to describe than others. We present a brief overview at the end of this handbook of some of the ways for extension personnel to evaluate the potential usefulness and appropriateness of the tools. However, in the end, educated and well-trained extension staff members will be expected to use their best judgment on how best to proceed. We hope this handbook helps them do so.

Acknowledgements

The Modernizing Extension and Advisory Services project (MEAS), funded by the U.S. Agency for International Development (USAID) recognized the need for a user-friendly handbook of extension core competencies for agriculture extension field workers and provided funding for the development of this resource material. We are grateful to the MEAS project team for their generous support and encouragement in developing this handbook.

Several people contributed to the preparation of this publication. Dr. Sejuti Das Gupta assisted us in conducting the review of literature and taking notes from team meetings. Mr. Ramjee Ghimire and Ms. Hannah Livuza focused their graduate studies on core competencies of extension workers in Nepal and Malawi, respectively, and contributed to developing useful process skills and competency tools. Dr. Austen Moore and Andrea Bohn of USAID/MEAS project provided useful comments. We received suggestions from Dr. Kailash Pyakuryal and Dr. Kristin Davis to improve this handbook. Ms. Leslie Johnson assisted in editing this handbook. We acknowledge all of their help and contributions in the development of this handbook.

Finally, it is important to point out that the extension worker processes, skills and tools in this handbook are not our inventions. We consulted several sources of information to develop our descriptions of the tools and in preparing the step-by-step how-to guidelines. We have provided references at the end of each chapter and with each tool described in this handbook to give credit to the authors we have relied upon and for readers to learn more about the approaches and methods described.

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1. Introduction

The global demand for food is increasing. World population will exceed 9.7 billion people by 2050, an increase of 2 billion people over the current population. According to the Food and Agriculture Organization (FAO) of the United Nations, there is a need to increase agricultural and food production by 60 percent to meet future food demand (Feed the Future, 2015). This increased demand will be driven largely by population growth and increases in per capita income.

We live in a world dominated by global forces—new scientific discoveries, changing demographics, shifts in socioeconomic characteristics, rapidly changing consumption patterns, and interdependence in global markets. Agriculture is subject to these changes and forces. New technologies and practices originating in research institutions, adapted by peer farmers or advanced by agribusiness organizations are changing the agricultural sector in countries throughout the world. Such changes, when positive, could have a bigger impact if complemented by effective extension services. A challenge for agricultural extension rests in unleashing the creativity of millions of front-line extension workers to disseminate improved technologies and approaches in ways that benefit small farmers and agribusiness operators across the world.

In the developing countries, the world's largest population group is engaged in the agriculture sector for two reasons -- food and employment. It has been established that feeding the world's growing population depends on securing and advancing the use of modern technology and approaches in developing countries. Numerous farmers in such countries, however, continue to cultivate crops and raise livestock in the same ways that have been used in their communities for generations. These farmers are often unfamiliar with new technologies and practices. Nor do they appear to have access to inputs and markets. These farmers need education on the use of these technologies as well as access to inputs, materials and markets – this is essentially the role of agricultural extension.

© M. Suvedi. Apple orchard and rice demonstration in Japan.

Global agricultural development data show that farmers in the developing countries of Asia, Africa and Latin America account for 87 percent of the world population and have no or limited access to advanced technologies (OECD-FAO, 2009). These developing countries are facing low agricultural productivity and food insecurity. This gap needs to be bridged by an actor who can intervene and link farmers with new technologies and practices. That actor is agricultural extension and advisory services. Agricultural extension and advisory services can interpret and explain the language of modern technology to farmers, fishers and ranchers. Agricultural extension service workers must be able and willing to work with farmers to transform the agriculture sector positively and sustainably. The primary change agent within agricultural extension services is the front-line extension worker, who in other contexts is called "agricultural advisor" or "extension educator."

Various forms of agricultural extension services exist throughout the world. Their primary functions have been to facilitate learning and extend new knowledge and technologies in non-formal educational settings to improve agricultural productivity and increase farmers' incomes. The nomenclature varies by country. The workers are known as agricultural extension workers, agricultural extension officers, extension educators, livestock development officers, fishery technicians, and community forestry and/or natural resources management officers. The term "agricultural extension advisor" is gaining in popularity because it reflects the increasing role of the extension workers in determining needs and program content.

Extension workers have some common roles: educating farmers and producers so that the farmers/producers can help themselves; linking farmers/producers with research-based information to improve agricultural production, productivity, processing and marketing of agricultural goods and services. These extension workers can serve as information brokers, community organizers, facilitators and change agents. Above all, they are the link between agricultural policy, agricultural research, agricultural education and training, non-governmental organizations (NGOs), farmer organizations and private sector stakeholders (Figure 1).

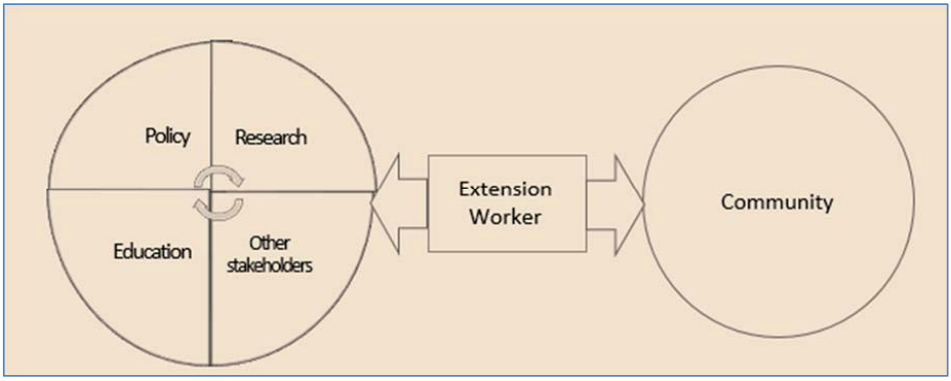

Figure 1. Extension workers serve as the bridge between the community and agricultural stakeholders.

Thousands of agricultural extension workers are taking development programs to remote rural villages all over the world. They work for governmental agencies, non-governmental organizations and private sector institutions.

Agricultural extension programs and services have seen some new trends emerging across the world, such as privatization, decentralization, participation of beneficiaries in the extension process and pluralism (i.e., multiple institutions and organizations delivering extension services). The general shift from top-down extension services to participatory and demand-driven programs is evolving. At the same time, there has been an increase in the need for broader and deeper levels of knowledge and skills for successful extension professionals.

History of Extension Services

The beginning of agricultural extension systems in Europe has been traced to the mid-19th century potato famine in Ireland, where agricultural advisors from the United Kingdom taught farmers how to grow alternative food crops. A few years later, in 1867, Oxford and Cambridge Universities in England started sharing the practical knowledge generated by their faculty with neighboring communities (Swanson and Claar, 1984). The European potato famine (1845-51) highlighted the need for institutionalizing agricultural extension. Elsewhere, Japan created the first agricultural extension service in Asia in 1899 (Swanson and Rajalahti, 2010).

In the United States, the precursors of extension agencies were agricultural clubs and societies established after the American Revolution in the early 19th century. As early as 1819, a pioneer agriculture journal entitled *American Farmer* encouraged farmers to report on their achievements and their methods of solving problems. In 1862, the Morrill Act was passed by the U.S. Congress to provide for the establishment of agricultural colleges and to ensure government funding for agricultural education to promote agricultural production and productivity.

In the United States, the U.S. Congress passed the Smith-Lever Act in 1914 establishing the Cooperative Extension Service. The Smith-Lever Act was designed to develop practical applications for farmers and homemakers of research conducted in the land-grant universities by providing instruction or demonstration of existing or improved practices. The Cooperative Extension Service was created as a partnership between local (county), state and federal governments.

The extension service's first big test in the United States came during World War I, when it helped the nation meet its wartime needs by increasing wheat acreage significantly, from an average of 47 million acres annually in 1913 to 74 million in 1919 (Suvedi, 2011).

During the Great Depression, land-grant colleges worked on an agenda aimed at farms being managed and their products marketed. Extension workers supported farm groups to organize themselves into cooperatives for buying and selling agricultural products. These were years of

significant drought, and many in agriculture felt their very survival was threatened. Extension workers educated women in family nutrition, surplus food canning, home poultry production, home nursing, and sewing to cope with the natural and economic calamities. Even through the years of the Second World War, the extension service worked to ensure that crop yields increased. In fact, food production increased during this period such that, by 1944, U.S. food production was 38 percent greater than the 1935-1939 average (USDA-NIFA, 2014).

1950s onwards

Since the 1950s, the number of farms in the United States has declined drastically while farm production has risen dramatically. In 1950, one farmer supported the food needs of 15.5 people; in 1997, one farmer supported the food needs of almost 140 people (USDA-NIFA, 2014).

In Latin America and the Caribbean, extension services were institutionalized after World War II. Extension services throughout Asia were established after the 1950s, soon after nations received their independence. In most African nations, extension services started in the 1960s and 1970s.

Food self-sufficiency and high productivity are the twin objectives of agricultural extension.

The expansion of agricultural extension services has been accompanied by defined hierarchical structures. To promote uniformity of activities, bureaucratic structures were introduced with the "district" used as the common intermediary bureaucratic level between villages and headquarters. With all instructions and funds flowing one way, organizations became increasingly top-heavy and increasingly used top-down approaches. Managers of such organizations tended to have loyalty toward the senior authorities, either the government or the international funder, rather than the farming community. In the developing world, food production was critical to upholding countries' independence; as a result these countries established ministries for agriculture or rural development. The evolution of various approaches is summarized in Figure 2.

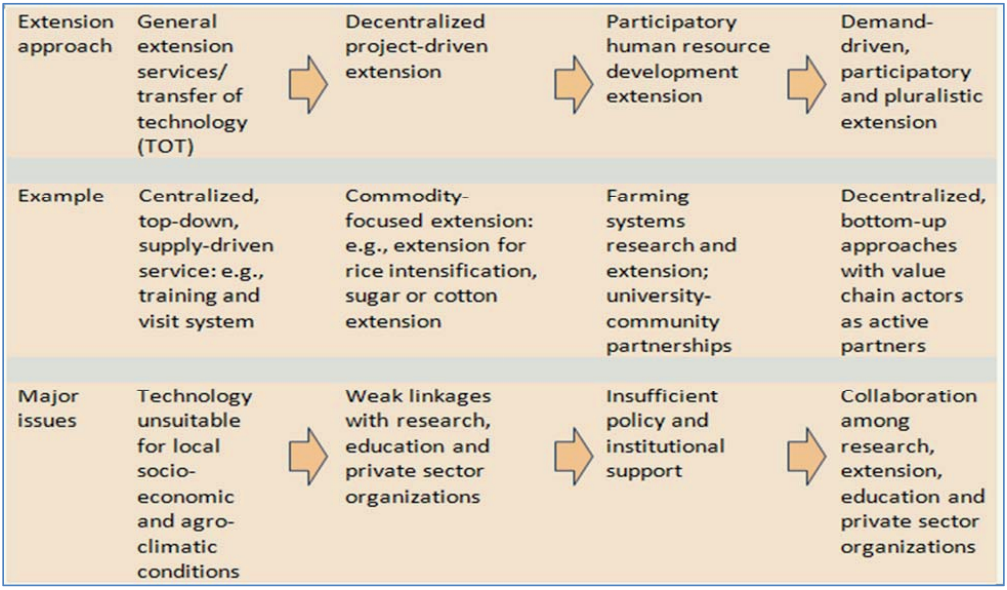

Figure 2. Evolution of extension approaches.

Agricultural extension services have undergone a process of diversification. In developing countries, large-scale food crop production remains a focus, though organizations at various administrative levels increasingly recognize the need to reach out to small and often resource-poor farmers, who make up the majority of farmers worldwide. Various models of agricultural extension and advisory services have been tried to educate farmers and agribusinesses. Technology transfer was the principal approach of extension services early on. Training and visit extension, integrated rural development, market-oriented extension (e.g., commodity-focused) and non-formal education (e.g., farmer field schools) increasingly dominated approaches to extension service.

In the developed world, commercial farming faces two principal constraints: surplus production and environmental degradation. Consequently, an objective of agricultural extension in those countries has focused on how farmers can continue to maintain their income from their resources while guarding against overproduction and further environmental harm. An often suggested path for these farmers is the diversification of their production systems -- for example, promotion of local food and livestock varieties. This approach includes an acknowledgement that agricultural extension needs to include social dimensions to make it viable (Jones and Garforth, 1997). It is generally agreed that successful and sustainable agricultural extension services involve beneficiaries effectively from the outset of their educational mission, beginning with needs identification. At the same time, developing countries are mobilizing both private and non-government sectors in the delivery of extension services. Therefore, there has been a shift in the

paradigm of extension services: from linear, technology transfer, top-down and government-provided extension to participatory, demand-driven and pluralistic extension (Rivera, Blum and Sulaiman, 2009). The recent trend in extension has been toward helping address issues such as climate change, food and nutrition security, linking farmers with markets, and gender integration. Davis (2015) advocates the needs for "New Extensionists" who possess both technical and functional competencies.

A noticeable trend in pockets of commercial crop production is the privatization of extension organizations, often as parastatal or quasi-governmental agencies, with farmers required to pay for extension services that they had previously received free of charge. This trend is strong in countries such as the United Kingdom and the Netherlands. Early signs of private service providers having an impact on extension service provision can be seen in the developing world as well. Some forms of extension privatization include cost recovery through forms of pay-for-service arrangements, outsourcing and contracting of extension services (Suvedi, 2011).

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2. Agricultural Development and the Role of Extension

Concept of Development: Who and Why

"Development" has been a buzzword for the past seven decades. The end of World War II left the world in a state of flux. Europe was recovering from two world wars. During this same period, many countries in Africa, Asia and Latin America achieved freedom from colonialism. During these early years, the notion of development arose in relation to the residents of old colonies that had become independent nations in the mid-twentieth century. For most people, "development" meant a reduction in poverty, unemployment and inequality. Some viewed development as economic growth; others saw it as a process of social change. Our view is that development entails bringing positive changes in the social and economic conditions of the people. Therefore, the efforts undertaken by various professional workers – such as community health workers, school teachers, agricultural extension workers and livestock field workers -- is development work.

In the mid-1900s, economic growth or well-being was understood to be the sole goal of development. The path prescribed was to be that of the western countries, which had developed following a linear path from agricultural to industrialized economy and society. The state was entrusted with the role of transforming social structures. The market also had a critical role to play in the economic transformation, with population moving out of the primary sector and getting absorbed into secondary and tertiary sectors as national income shifted simultaneously. The tussle between who should be the driver is ongoing.

© M. Suvedi. Vegetable production in Cambodia.

For many years, development was considered largely synonymous with industrialization. Its ultimate goal was fairly clear: to raise incomes. Freedom came to mean choice for poor people

to access the wide variety of goods and services then widespread in developed societies. It was, in short, about getting richer or more prosperous. Having won the great battle against colonial masters, it was imperative for the new nations to achieve the capacity to manufacture finished goods on a priority basis. So land and other natural resources were also mandated by the secondary sector. This was required to alter the terms of trade between the developed and developing world (Rapley, 2007).

Almost six decades later, scholars have argued that both state and market were united by a common goal: the attainment of development, albeit with varying means. The primary concern of the phase of development was establishing external control over citizens' lives and hence was almost entirely top-down. The new paradigm that was born to correct the problem of an absence of input and consideration of beneficiaries' preferences is that of participatory development.

A critical feature of the new discourse and people's participation is bringing the poor, women and youth into the forefront of development efforts. There is also evidence -- stronger for some countries, such as Brazil, Peru, India, Nepal and the Philippines -- of a feminization of smallholder production. With male migration necessitated by poor economic returns from agriculture, the numbers of rural women who are bearing the prime responsibility in agriculture have seen a steep rise.

The global data show that women constitute 43 percent of the agricultural workforce in developing countries (FAO, 2011). This is certainly not uniform -- women make up only 20 percent of the total agricultural workforce in Latin America, though a rise has been registered in the waged agricultural workforce in the region's agro-export sector (Deere, 2005). The figures are much higher in Asia and in Africa. The average figure in Asia is 40 to 50 percent; Malaysia and the Philippines are showing a decline, and China has had an increase to about 48 percent (FAO, 2011). Africa, partly because of the impact of HIV/AIDs and conflict, has seen a rise in the share of women in agriculture (FAO, 2011).

The public awareness of the need, benefits and demand for safe food is increasing. The public now demand that agricultural development be economically viable, socially desirable and environmental friendly. Similarly, environmental degradation due to industrial/ agricultural waste and pollution, the felling of trees to create space for cultivation, extensive use of agrochemicals to improve soil fertility and increase crop and livestock production, and extraction of groundwater for surface irrigation have become widely recognized and targeted for reduction and elimination. Furthermore, increasingly it is recognized that promoting short-term success may not yield long-term benefits. The latest wave in development discourse is "sustainability", a parameter by which all innovations and new agricultural practices should be measured.

Sustainable agriculture has been defined as an integrated system of plant and animal production practices having a site-specific application that will, over the long term, "(a) satisfy human food and fiber needs; (b) enhance environmental quality and the natural resource base upon which

the agriculture economy depends; (c) make the most efficient use of non-renewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls; (d) sustain the economic viability of farm operations; and (e) enhance the quality of life for farmers and society as a whole" (U.S. Food, Agriculture, Conservation, and Trade Act [FACTA], 1990).

By this definition, agricultural production will be sustainable if it is socially acceptable, economically beneficial and environmentally sound. Sustainable agriculture production requires dedicated work of a cadre of extension workers with a set of core competencies and skills to empower beneficiaries, typically rural people -- men, women and youth -- to make informed choices with an eye on long-term costs and benefits.

Agriculture and Rural Development

"Agriculture" encompasses many things -- cultivation of food crops such as rice, wheat, corn, millets, pulses, fruits and vegetables; beekeeping; raising silkworms and producing silk; cultivation of fiber crops such as cotton; and raising of livestock -- beef and dairy cattle, swine, poultry, sheep, goats and other animals used for meat and/or milk or fiber production. Agriculture also entails technology and practices for growing, harvesting, processing, storing and marketing these commodities.

Agricultural development is closely associated with rural development because the majority of the rural population is engaged in some form of farming, and most agricultural production occurs in the rural areas. Rural areas are less densely populated than urban areas, and the majority of the population of developing countries lives in rural areas. Of course, the proportion of rural and urban populations varies from nation to nation.

It should be noted that many food and agricultural activities apart from cultivation of crops and rearing of livestock -- such as food processing, packaging and distribution -- are performed in urban communities. However, more than 75 percent of the male workforce in urban areas is engaged in non-agricultural activities.

Rural development is generally defined as those efforts promoting the overall improvement of living conditions of people living in rural areas. "Living conditions" is a complex term that relates to interrelated factors that include social, economic, environmental and political aspects.

In any event, rural development supports the improved well-being of rural people. Governments and international development organizations dictated the first wave of organized development. In the past three decades, realization has grown that greater participation of development beneficiaries in decision making leads to better results. This experience has given rise to approaches that incorporate participatory planning in development efforts including decisive roles for the target groups of beneficiaries. Today, preferred development approaches involve the target/recipient communities in setting the development goals and priorities. To advance

such efforts and make them sustainable, development efforts include efforts to develop local people's capacities; investment in basic infrastructure, facilities and social services; and efforts to ensure local food security and social justice for rural populations, especially women and other marginalized groups.

Rural development is a strategy to enable a specific group of people -- poor rural women and men -- to gain for themselves and their children more of what they want and need (Chambers, 1983). It involves helping the poorest among those who are seeking livelihoods. The intent is to channel avenues to improved well-being and livelihoods toward small-scale farmers, tenant farmers and the landless as well as empower these marginalized groups to produce (more) food in sustainable ways. Therefore, poor people in the target areas should have a hand in directing the agencies and actors pursuing rural development and other engagement aimed at positive change in their settings.

Without doubt, agricultural extension services have been critical components of rural development efforts. They have contributed to the reduction of hunger and poverty, increased adoption of improved technologies, and increased productivity and capacity of their beneficiaries (Swanson and Davis, 2014).

What is Agricultural Extension?

Agricultural extension provides research-based educational and informational programs typically for rural populations. Historically, agricultural extension assisted farm people through educational procedures aimed at improving farming methods and techniques, increasing production efficiency and income, and bettering standards of living. However, increasingly extension serves serve both the rural and urban populations with a wide range of programs aimed at helping to improve beneficiaries' quality of life. According to Maunder (1972), "the role of extension is to help people to help themselves through educational means to improve their level of living" (p. 5).

The definition of agricultural extension has been changing as its objectives and the models or approaches followed have changed. For the purpose of this handbook, we like the definition advanced by Christoplos (2010, p.3):

Agricultural extension is a system that facilitates access of farmers or their organizations to new knowledge, information and technologies and promotes interaction with research, education, agri-business, and other relevant institutions to assist them in developing their own technical, organizational and management skills and practices.

Types of agricultural extension services

Many types, forms and structures of agricultural extension services are found across the world. Suvedi (2011) analyzed various extension models and identified six prevailing models.

Technology transfer model: Most extension systems rely on technology and information that are either available or able to be derived so that farmers can use it. This form of extension relies heavily on a linear concept of technology transfer: new technology and knowledge generated by scientists/researchers/others are transmitted by extension agents to farmers to increase production and income. This is the most common agricultural extension approach followed by developing countries.

Training and visit extension model: Beginning in the late 1970s, the World Bank introduced the "training and visit" approach in about 70 countries to speed the dissemination of Green Revolution technologies to farmers. This approach assumed that extension workers were poorly trained and not up-to-date on the subject matter, were poorly supervised and tended not to visit farmers regularly. To address these problems, this approach introduced a system of regular training of extension staff members by subject matter specialists, regular visits by extension workers to innovative farmers, and periodic interaction between farmers, extension workers and research scientists to facilitate the two-way flow of communication.

Farmer training model: Agricultural extension programs in many countries initiated farmer training centers where select "model farmers" from surrounding villages or districts could get training in improved farming methods and techniques. It was assumed that, after the training, the model farmers would go back to their villages, adopt the new farm practices they had learned during the training, and meet with others in the village to share what they had learned. These training programs would address two issues: the inadequate number of front-line extension workers to serve a large number of farmers, and the education of youth and inexperience of extension workers in the field. Farmer field schools are an adaptation of this approach.

Participatory extension models: Evidence indicates that when rural people organize for their own benefit, much can be achieved. Generally, participatory extension approaches assume that local farmers have wisdom or indigenous knowledge regarding food and fiber production on their land, but their productivity and livelihood could be improved by learning more of what is known outside their locality or from applying scientific investigation techniques through on-farm trials. Farming systems research makes the same assumption regarding the value of local knowledge and strives to create co-learning opportunities among extension workers, researchers and farmers. Most participatory extension models are supported by international NGOs, and field activities are managed by local NGOs. Examples of this approach are Community Forestry and the Small Farmer Development Program in Nepal.

Farmer-based extension organizations: In more developed economies, farmers' associations or cooperatives have established and managed agricultural extension programs to serve the needs of their members. Management structures and sources of financial support vary from country to country. In general, members of the group or cooperative, not the government, control the functioning of the extension system. A few examples are the farmers associations of Japan, and members of farmer associations or commodity groups -- such as coffee, sugar,

cotton or rubber growers -- who pay annual dues or a small portion of their product sales to receive extension services. In other situations, participants pay part of the cost of extension programs and government sources provide matching support.

University-based extension model: Many agricultural colleges and universities offer outreach or extension services that help local communities and also create an opportunity to improve the quality and relevance of their teaching and research functions. Agricultural universities have an assumed mandate to create and test technical knowledge so that it is relevant and useful to farm people. Also, both teachers and students benefit greatly from interaction with farmers. The U.S. land-grant universities were developed to serve the people in each state with three interrelated and complementary functions: teaching, research and extension. This concept is recognized by many agricultural colleges and universities developed through USAID assistance, and these universities have organized extension services in nearby communities.

An in-depth analysis of alternative extension approaches can be found in *Guide on Alternative Extension Approaches* (Axinn, 1988).

Agricultural extension and advisory services across the world continue to change. For example, the World Bank no longer supports the training and visit approach to extension. Today, many donor organizations support participatory and demand-driven extension services. It is fair to say that there is no single dominant agricultural extension system today. New approaches that integrate elements of many extension models are evolving constantly. In most countries, the central government provides an overall policy framework for extension, but a variety of actors -- e.g., public organizations, civil societies and private firms -- provide a range of services to farmers and agribusiness operators. This has resulted in the rise of pluralistic extension systems in increasing numbers of countries.

Suvedi (2011, pp. 2-3) summarized the key elements embraced by contemporary agricultural extension services:

Privatization: In the United Kingdom, public extension service has evolved over time into a private consulting business. In the Netherlands, farmers provide the majority of the cost of extension service. Other forms of privatization include cost recovery, outsourcing and contracting out extension services. In Costa Rica, for example, the government “provides farmers with extension vouchers, which can be used for getting advice from private specialists”(Qamar, 2006).

Pluralism: Contemporary extension services recognize the heterogeneity of the farming community and the need for a diversity of extension service delivery systems. Pluralistic extension encompasses a range of service providers, approaches, funding streams and sources of information available to farmers and clients (INGENEAS, 2016). Thus, multiple organizations, both public and non-public, deliver extension services. Examples include

extension services delivered by local NGOs and private seed companies in Bangladesh, Malawi, Mali and Nepal.

Decentralization: The key element of this approach is to transfer the decision-making functions to the local levels. Local units of government take charge of managerial functions including planning, implementation, and financing and accountability functions. Extension services are planned and implemented by district- or subdistrict-level governments in the Philippines, Tanzania and Indonesia.

Client participation: In the "old school" models of extension services, diffusion was accomplished through transfer of technology; in "new school" models, diffusion is achieved through active participation of farmers in the learning process. Extension programs and services are managed by membership of user groups such as coffee growers' associations and vegetable cooperatives.

Women and youth focus: The number of women farmers is rising except in western nations as rural farm youths move to white-collar jobs in urban areas. This has resulted in the loss of farm population and a need for reengaging rural youths in food and fiber production, processing and marketing.

"Demand-driven agricultural extension" is the buzzword used today. It means that extension systems respond to what farmers or clients ask for to satisfy their educational and informational needs. The farm household is the central focus of the extension service. The hope is that clients will value the educational input so much that they will be willing to invest their own resources through some form of cost share to receive the service.

Today, the traditional agricultural extension approach -- top-down, supply- and technology-driven -- no longer appears to be an appropriate model. Although some countries continue to follow a **paternalistic** and top-down approach to service delivery, many have adopted a **participatory** approach allowing farmers and agribusinesses to play a significant role in planning and implementing extension services. More recently, many nations are promoting pluralistic service delivery and a market-driven or fee-for-service system.

Hence two paradigms seem to prevail -- in some countries, extension service providers **persuade** farmers to implement specific, predetermined practices. In other countries, **extension services** seek to **educate** farmers about technical options and management strategies and then let them decide which option would work best for them. In some settings, both of these approaches co-exist.

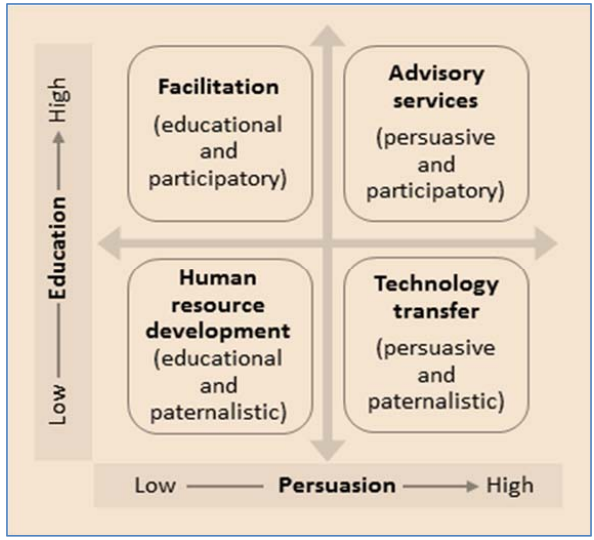

Figure 3. Four paradigms of agricultural extension (adapted from McNamara, 2015).

Based on the dichotomy of these two approaches, McNamara (2015) characterized four paradigms of today's agricultural extension services (Figure 3).

Technology transfer paradigm (persuasive and paternalistic): It is a top-down approach that delivers specific recommendations to farmers about the practices they should adopt. This was prevalent in colonial times and also was at the heart of the training and visit system. Farmers are provided with prescriptive "technology packages" for specific, predefined agricultural products -- e.g., maize, rice, goats, shrimp production.

Advisory services paradigm (persuasive and participatory): Through a persuasive but demand-driven service, the public extension staff members or the private consultants provide advice **in response to requests** from the farmer but with predetermined packaged solutions. More often, development projects managed by donor agencies and NGOs use such advisory service to promote technology adoption. The provision of technical advice is often linked to inputs—seed, fertilizer, demonstration of new technology or training support. The cost of providing such advice is either covered by donor funding or embedded in the price charged for the inputs. In other cases, farmers may pay directly to consultants for specific services, such as animal health and farm management services.

Human resource development paradigm (educational and paternalistic): The extension services in Europe and North America are examples of this paradigm, by which agricultural colleges or universities and vocational and technical training centers provide education and training to the rural people based on perceived or assessed needs. Though teaching methods are mostly top-down, the learners are expected to make their own decisions about how to use the knowledge they acquire.

Facilitation extension paradigm (educational and participatory): This is a participatory approach of "teaching people how to catch fish." The intended beneficiaries participate in the identification and prioritization of learning needs. There is some form of cost share to receive the extension service. Many development projects employ extension staff members or NGO workers to ascertain production gaps or identify local educational or informational needs. Often, innovative or progressive farmers are utilized to demonstrate the application of new technology to small/average farmers for higher profitably under similar conditions.

To sum up, nations engage in agricultural extension work to inform farmers and their households about innovations and improved practices. The overarching goal of agricultural extension is to improve rural livelihoods and ensure food security. These services remain largely the responsibility of the public sector. However, there is no uniformity in organizational structure and educational service delivery mechanisms.

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3. Working in the Community

The purpose of community development work is mainly to facilitate positive changes in the social and economic conditions of communities so that people can improve their living conditions. It is also an attempt to support disadvantaged people, especially in poorer communities, to gain self-sufficiency and self-confidence in helping them solve their own needs, problems and issues.

A community is a social system with distinct sociocultural, political, economic, environmental and technological subsystems. These sociocultural distinctions manifest in daily lives and need to be factored into work with a community. Bunch (1995) and Chambers (1983) offer practical tips to effectively work in the community.

Understand Your Role Well in the Community

KNOW a community is not homogeneous

Local self-government institutions across the developing world superimpose a kind of uniformity upon societies that otherwise are layered with variations: differences of language, of customs, of ascribed identity such as ethnicity, caste and tribe– and all affect development. Within the local institutions, some exert power; others are politically powerless (Chaturvedi, 1985). Some families send their children to school; some do not. Therefore, some children are educated while others work in the field all day. Such heterogeneity can give rise to conflicts of interests. Therefore, development workers such as agricultural extension workers have to be cognizant of the characteristics of the community and adopt appropriate strategies or approaches as they work in these communities.

OBSERVE to adapt

If the community sees you as an outsider with outside interests, its members may not believe the messages you give them. The work you undertake in a community will be less effective if community members feel that you do not understand their situation -- social, economic and agroclimatic. So you must constantly observe and reflect upon the practices and behaviors of communities and their members. For instance, if you are a woman development officer, dressing appropriately is crucial to being accepted in a community. In many communities, women put cloth on their heads. Respecting this tradition might help establish a good rapport with the local people. For a male extension educator, adhering to a community's social norms – such as how to talk to women -- shows respect for their practices. Customs and local norms vary across cultural groups. For example, women appear to have many more social restrictions in Muslim communities, for instance, than they do in many tribal households. You need to observe and notice how the communities are organized and how best to work with them.

APPRECIATE the cultural specificities within a community

A village community might have multiple religions, tribes or castes, each with different beliefs and practices. Religion, social structures and traditions shape cultural practices. For example, a tribal family is distinct from a Muslim family or a Hindu family. They will each have different food habits, which affect what crops they can grow. There are auspicious days when women fast so they cannot participate in farmer training programs or fieldwork. Generally, women avoid talking in front of male members in Muslim households. This is also true in some Hindu families but not in tribal households. In some cultures, women hesitate to attend meetings together with male members in the community. Hence try to plan a separate meeting for women members or choose a suitable location to include them. It may be wise to seek permission of male household members so it is possible to have smooth dialogue.

Cultural values may be different in a tribal community than in religious Hindu or Muslim or Christian communities. For tribal people who worship nature, flora and fauna are integral to their community. You must respect the local culture if you want to introduce change within the social system (Bunch, 1995).

Some communities depend heavily on outside employment. For example, members of many communities work for a multinational company, live inside a plantation or work as factory workers, so their availability in the village would be seasonal or otherwise limited. Learning about the sociocultural specificities enables you to work with people effectively.

WIN the people's trust by spending time with them

Give sufficient time, make repeated visits and keep patience to build trust between the community people and you. It takes commitment from the individual extension worker to win over the reluctance that local people initially project. Often when an extension worker enters the village, the reaction of the people is "Here comes an outsider." They are hesitant to work with an extension worker or the advisor because he/she is unfamiliar and they are uncomfortable with him/her, which has to be changed over time. They may also have a poor image of an extension worker who served in the village prior to your arrival. Building rapport and trust is essential for effective work in the community.

CLEAR doubts about your roles

Explain at the outset why you are in the community and/or village. Wrong expectations can spoil a possibly good relationship, and other public services can be counterproductive to the work. Always avoid promising things that you cannot provide or deliver. Always be punctual in your work and meetings.

TALK to resolve conflicts

A rural society can be highly divided and hierarchical. When you intend to work with poor sections, resource-rich farmers might resist such a plan, thinking it will affect the former positively and thus decrease the power and authority of the rich. When planning, involve the

resource-rich farmers and assure them that whatever the innovation—irrigation technology, new seed variety, new vaccine for livestock, etc.—it will benefit all farmers.

Another crucial conflict can arise when choosing a location where new practices would be first implemented and/or demonstrated. Be it a tube well or a high-yielding seed, the leader of the village is likely to suggest having it close to his/her landholdings. This may conflict with your intention to ensure that benefits reach the targeted groups. Such conflict has to be tackled carefully. Leaders should be persuaded that they would receive more respect from the community people if the demonstration can be planned at a central location where more families could observe the results. A community-centered approach to technological change will recognize the contribution of the leader and hence he/she would gain people's support through facilitating such an activity.

To succeed

- Do your homework on characteristics of and differences within a community before assuming work in the field. Understand the local social structure and gender roles. Find out where people buy or sell their farm products, where they borrow money to purchase inputs, what collateral they use, and what interest rate they pay. Find out what channels of communication are commonly used by the local people, who the opinion leaders are, and where people go to seek advice or solutions to their farming problems.
- Listen to people so their needs help focus possible solutions.
- Resolve conflicts over questions such as site selection for a crop demonstration or timing of the farm meeting before introducing a new technology or holding workshops/trainings.
- Use greeting words in the local dialect to make local people comfortable.
- Include women, youth and members from marginalized groups as beneficiaries.

You must demonstrate that you care about the people you serve and you are an unbiased educator in the community. You should neither enter into controversial issues nor take sides between political ideologies. You should not represent the private companies. Your work should focus on teaching people how they can benefit from research-based information and technologies.

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4. The Extension Worker

Agricultural extension and advisory services are in transition. Historically, extension services were funded mainly by public funds and extension workers played a technology transfer role -- linking research stations with farmers. Today, the approach of extension services is changing. Agricultural extension services have become more decentralized, demand-driven, participatory and pluralistic. With village-level planning coming into practice alongside democratic decentralization, extension work has undergone a change from being entirely top-down to becoming increasingly led in part by community demand. Farmer organizations and consumer groups have increased participation in extension programming, and the private sector has emerged as a strong partner to provide input supply and services. Further, there have been major shifts in agricultural research systems with emphasis on locally driven and participatory research. This scenario explains the changing role of the extension educator and the heightened need to focus on building pluralism in extension service.

Roles and Responsibilities of Extension Workers

Extension workers serve as links between agricultural research and policy and farmers.

- Disseminating new research-based knowledge through training and demonstrations.
- Developing networks with local organizations, ensuring coordination of services and promoting collaboration with development partners.
- Organizing producers into groups and associations.
- Linking farmers to markets—identifying opportunities and conducting market analysis.
- Facilitating access to credit and inputs supply.
- Supporting market and value chain development for farm products.
- Convening innovation platforms to facilitate knowledge management.
- Promoting gender equality and engaging various marginalized groups in extension programs.
- Supporting adaptation to climate change.
- Organizing participatory, demand-driven program planning for extension.
- Implementing collaborative and pluralistic delivery of extension service.
- Evaluating local extension programs to report progress and document impacts.

Role of the Extension Worker

Extension is not merely about educating rural people to attain physical and economic prosperity -- it involves a holistic development of the people in rural, suburban and urban areas. Extension service today is not limited to providing information on crop or animal production. It involves

education and technical assistance to achieve local food security -- production, processing, marketing and distribution of safe and nutritious food for all consumers. It is an educational service “from farm to fork.”

© M. Suvedi. Extension training at a farm in Cambodia.

The list of specific roles and qualities of extension education can be long. It may not be possible for all extension workers to develop all the competencies needed to perform all such roles. Some of the competencies, such as market analysis and impact evaluation, may be developed at the regional or national level. At the core of all endeavors of an extension worker, however, should be helping the rural people attain economically and environmentally sustainable livelihoods.

Above all -- you are an educator, facilitator and development worker.

Apply Adult Learning Principles

Extension works mainly with adults. Adults learn differently from children -- they have to be taught and influenced to change their behavior. Adults possess considerable experience, and they are interested to gain new knowledge and information that directly contributes toward better living. The following facts should guide in helping adults learn and change:

Fact: Most adults have short attention spans. Their retention of information is also poor.

Action: Keep lectures or presentations short -- about 15 to 20 minutes if possible. Start with the most important facts, procedures or issues. Present information or skills to be acquired in a logical manner with regular breaks to keep learners active.

Fact: Engaging all five senses in the learning process enhances learning and retention.

Action: Involve adults in practicing what they are expected to learn. Relate new information and practices to their life experiences. As much as practicable, engage all

senses -- seeing, hearing, tasting, smelling and touching -- in the learning process. Remember the old proverb, “What I hear, I might forget; what I see, I remember; and what I do, I know.”

Fact: Adults bring to a learning situation a variety of experiences and circumstances.

Action: Understand that adults have significant life experience and that relating the new information or skills to past experience enhances the learning process.

Fact: Adult learners seek knowledge to directly benefit their families and communities.

Action: Provide them information that will help solve problems and produce immediate gains that are observable, measurable and profitable.

How to Help Adults Learn Better

As an extension educator or development facilitator, you need to understand what motivates adults to learn and change.

Goals: Clearly state the purpose and objectives of your lesson or workshop.

Orientation: Instruct through hands-on learning so that instruction is task-oriented instead of memorization-based.

Relevance: Focus on application -- content should have immediate relevance to the participants' needs or personal lives.

Experience: The basis of learning should be what the learner has experienced. Moving from the known to the new will allow quick connection.

Quality not quantity: Instruction should focus on the quality of a few experiences, not on the quantity of information.

Fact: Adults have a lot of wisdom, particularly about indigenous practices that they have been using for years and even generations.

A**ction:** Respect the rich experience of the adult learners and make them feel part of the learning process. Let your adult learners reflect on their past farming practices and identify their merits and demerits, and make their past experiences the foundation for new learning.

Fact: Adults may have poor vision or hearing skills.

Action: Present information through lectures, discussion and demonstration. Use of flip charts, PowerPoint presentations, pictures and audiovisual aids helps adults learn. Keep the writing on a chalkboard or flipchart short and crisp. Ensure that learners can see all visual aids.

Levine (2001) advocates six principles of adult learning, which have direct relevance to extension workers:

Tell adults what you're about to tell them. Give a quick summary of the topic and how it could benefit them. Once they feel that the new information or skill is helpful, they will listen more carefully and hence learn better. Share the learning objectives to set the framework. Start with why the new knowledge or innovations should be adopted to appeal to their thinking selves.

Organize your material for presentation in a logical order. Make a list of the most interesting things you intend to include in a class. Organize the content to hold the interest of the learners. So, structure your teaching in a way that it tells a story and its parts are logically connected.

Resist the temptation to try to tell them everything. Begin by giving a bit of information on one subject rather than a long lecture on lots of things. Ask questions to find out what they have understood. Ask what else they want to know. The intention is not to withhold information but rather to ensure that what you provide is useful for the learners.

Understand what you want the adults to do with the information you are presenting. Learning can occur at many levels -- knowing, understanding, using or sharing of information. And each level, like stairs on a staircase, builds on the previous one and leads the learner progressively higher (Figure 4).

Know when to teach and when to learn. Helping adults learn should not be a one-way process where the teacher just keeps talking to the class. You must learn from the experience of your adult learners. So, encourage the learners to pose questions, and write them down and your thoughts on them next to each question. Try to involve as many individuals in the class in asking and answering questions. Let the participants provide some real-life examples as you teach them. It keeps their attention as they feel involved and makes them see the use of what you are teaching and how it connects with what they already know.

Help the adults transfer the concepts to their own lives. Help your learners shift their thinking from the classroom to the real-life situations where they will apply the new information that they have acquired. Provide tips on how they might use or apply the information in their home, farm or work environments.

Leagans (1961) developed a similar list of guidelines. Two of them are of particular relevance:

- Be willing to work at the people's pace rather than exerting pressure for the acceptance of decisions. The former makes learning long-term and useful.
- Relate knowledge about innovation and technology to ideas that local people pose. Local people's views are shaped by their experience and interest.

Cogntive Process	Mental Activity
Create	Generate, Plan, Produce, Develop
Evaluate	Check, Critique, Judge
Analyze	Differentiate, Organize, Attribute, Compare
Apply	Execute, Implement, Operate
Understand	Interpret, Exemplify, Classify, Summarize, Infer, Compare, Explain
Remember	Recognize, Recall, List, Repeat

Figure 4. Structure of cognitive process dimension (adapted from Krathwohl, 2002).

In most developing countries, the role of extension educator involves technology transfer. In agriculture, these educators serve as a link between research stations and the local farming community. They coordinate the input supply, teach farmers how to grow new crops or raise livestock, and link farmers to market. Bunch (1995) offered five practical tips for agricultural extension workers:

- **Know your limits.** Do not promise what is not within your reach to provide, and know that you have to move out eventually, so act as a catalyst for long-term change.
- **Respect the farmers' ideas.** Learning is integral to teaching. So respect what they already know – after all, they are real practitioners -- instead of imposing your ideas on them. Try to learn about the traditional practices: what they do to protect soil or farmyard manure used as fertilizer. These are sustainable practices both environmentally and economically -- build on them.
- **Dignity is above all.** Farmers are the producers of food for the world. There is dignity in that significant work that should be respected and protected when you're training them.
- **Practice what you preach.** When you are in a village to provide extension services, do not choose to go to the rich farmer's house for comfort. It alienates the small farmers and puts distance between you and them.
- **Be a moderator.** At first people are slow to speak up. Some people always speak more than others and tend to dominate the discussion. As a moderator, encourage those who

speak less to put forth their ideas and experiences. Assure them that they can ask without any hesitation and fear.

Above all, extension workers should be able to mesh indigenous knowledge and traditional practices with new information and innovations to make a real difference.

The Role of Extension Workers has Undergone a Transformation

In the early days of extension, training of extension workers focused more on developing technical know-how. Soon it was recognized that extension workers lacked practical skills to teach farmers. Extension training in the 1970s started to emphasize "do-how." Agricultural training centers and farmer field schools emphasized method and result demonstrations. Extension followed teaching principles such as "seeing is believing" and "learning by doing." During the late 1980s and early 1990s, rural and agricultural development professionals recognized that technical know-how and do-how were necessary but not sufficient for effective teaching and learning in agriculture. Because social systems are complex and adoption of new ideas and innovation constitutes a change in human behavior, it was recognized that extension workers would need to develop skills about "human-how" – how to help people learn and change. Understanding local culture, group dynamics, social power relations, gender roles, communication patterns and human motivations is essential to "human-how" skills. Therefore, to be effective, an extension educator must integrate technical skills with human-how skills (also referred to as soft skills or process skills).

© M. Suvedi. Leader farmers in Nepal show interest to adopt new bamboo variety.

Last but not least, "international-how" has emerged as an essential competency of an extension educator. With the spread of globalization, trade among nations has increased the interdependence among them, which affects the agricultural trajectory within sovereign countries. Farmers' organizations and commodity groups conduct business across the world. They frequently need information on markets, standards and other trade promotion matters. To

be competent to serve their stakeholders, extension workers themselves need to be educated so they understand the global dynamics of trade.

The don'ts for extension workers: Minimize biases

The goal is for extension workers to reach as many adults as possible, and to ensure that, you need to include the poor and women farmers as well as farmers that may be atypical for the region or your previous extension efforts. The purpose of this handbook is not only to help you learn what an extension worker is expected to do but also to learn what you must work to avoid. Any bias that prevents you and your colleagues from reaching the needy is taking us away from the goal of extension work. Biases commonly arising include middleman bias, gender bias, language bias, hospitality bias, innovator bias, seasonal bias and time bias (Sutherland, 1994; Chamber, 1983). It is important to be mindful of such biases, and to take steps to minimize and avoid them.

Middleman bias: Using a middleman to reach out to local people can lead us to choose local political heads or family heads. Middlemen commonly bring in progressive farmers who are credit receivers and have access to irrigation. Local leaders by the sheer nature of politics would want their own kin and interest groups to benefit. In the case of contacting only heads of households, we may be missing our target audience -- the other family members who probably perform the labor-intensive work.

Gender bias: When an extension team is male-dominated, it tends to choose male farmers as spokespersons and key informants.

Language bias: Often extension workers do not speak or understand the local language; hence they end up choosing those farmers who are articulate in a language the extension workers use. This bias tends to exclude women and tribal people who are conversant in the local language only.

Hospitality bias: When an extension worker or a team values hospitality highly, they tend to spend time with the better-off or resource-rich farmers who can provide good food and comfort. This alienates the resource-poor farmers who, for social and economic reasons, may not be welcome in their residences.

Innovator bias: Extension has a tendency to start working with innovators or progressive farmers in anticipation that technology and innovative practices will trickle down quickly to the rest. However, the trickle-down theory may not always hold true, and the smallholder farmers are left out.

Seasonal bias: Seasonal migration of people has a huge impact on farming. Small farmers tend to visit nearby urban centers and industrial areas in search of off-farm jobs during the dry winter season when there is not much they can grow at their farms. If extension workers visit these villages in the dry season to select program beneficiaries, they tend to choose well-off people and may miss real farmers.

Time bias: When extension workers visit villages only when the roads are open and during the daytime when most farmers are working in the field, they get an incomplete picture of the village and its people, which changes significantly when night falls or the season changes.

The other biases that Chambers (1983) found affecting rural development include:

Spatial bias arises when better-off households located near roads and service centers are visited but those who are located in remote areas -- and who are often poorer -- are missed.

People bias arises when information is gathered from either rural leaders or the educated alone who represent only the elite.

Project bias arises when a particular model village or successful technology is repeatedly presented to outsiders and development workers do not reflect on how other villages and technologies are doing. It also affects extension work when development practitioners choose a location because it is comfortable to work in—easy access, easy to find boarding and food, etc. Such project bias prevents programs and hence innovations and technologies from reaching the target communities.

Respect diversity

Extension workers work with communities with people having different backgrounds (e.g., race, caste, ethnicity or tribe), different religions and different resources. To be effective, extension workers should be able to:

- Engage people from various socioeconomic groups in extension program development.
- Demonstrate sensitivity to the unique and diverse needs of cultural groups in the community.
- Enhance participation of cultural groups in extension programs and services.
- Effectively organize and offer programs that reflect laws and policies that support diversity.

Ethical issues

Understanding the core values of extension is essential for all professionals. The field workers must maintain ethical standards of the profession. They must value the principles of honesty, respect for the local culture, accountability, inclusion, transparency and integrity (Davis, 2015).

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5. Core Competencies of Extension Workers

Agricultural systems and practices are changing across the world, and producers' needs are changing, too. Farmers of the developing world are increasingly aware of new technologies and improved practices. They are demanding credible information about the benefits of adopting these improved practices. Specifically, they are demanding services such as quality seeds, timely supply of inputs such as fertilizer, credit to buy needed inputs, and access to market information and services. They expect these services to be responsive to customer-expressed needs -- that is customer-driven. These challenges put pressure on extension professionals to be more knowledgeable, skillful and able, not only in technical subject matter but also in process skills.

Extension workers should remain current with emerging technologies, be able to handle challenges, tap opportunities and demonstrate competency in their services. They need to possess a set of core competencies -- i.e., collective organizational skills upon which the organization bases its primary operation or services. Athey and Orth (1999) defined core competencies as a collection of observable dimensions -- individual skills, knowledge, attitudes, behaviors, and collective processes and capabilities -- necessary for individual, organizational and program success. McClelland (1973) argued that being knowledgeable and/or intelligent only does not indicate that a person is an effective and efficient worker -- a worker's performance is a function of his/her knowledge plus skills and attitudes. Hence, extension professionals should not be judged solely on how knowledgeable they are in their technical subject area of expertise but on how skillful and able they are in delivering services to their clients. It should also be noted that core competency needs are contextual, and extension workers' contexts affect their competency needs and competency levels.

The roles and responsibilities of an extension educator may be classified into two broad categories: process skills or functional competencies, and technical skills. Networking with local organizations, facilitating group formation, resolving conflict and engaging stakeholders in program planning are examples of process skills or functional competencies. On the other hand, identifying the causal organism of maize disease, testing the soil pH and interpreting the results, and conducting a method demonstration on how to perform artificial insemination on dairy cattle are examples of technical competencies. A good extension educator needs to possess both process and technical skills.

Developing core competencies is fundamental to all extension staff training. Davis (2015), Davis and Sulaiman (2014), and Sulaiman and Davis (2012) articulate the need to develop functional and technical capacities across three levels: individuals, organizations and enabling environment. They also emphasize capacity development as a long-term investment for extension.

The level of skills required may vary with the place, country and context.

Specialized Competence

Technical skills and competencies for extension field workers vary by specialization. For example, an extension worker working in the forestry sector needs to have basic technical knowledge and skills that would differ from those of agricultural or livestock extension workers. Similarly, community health and nutrition extension field workers and community fishery technicians will need different technical knowledge and skills. Of course, some level of technical skills and knowledge are equally needed and useful for a wide range of agricultural extension workers. Examples of such technical skills include knowledge on crop varieties; diagnosis and treatment of insects, other pests and diseases; and development of a farm business plan based on market analysis.

Characteristics of Effective Extension Workers

Scholars and practitioners have proposed many areas of core competencies for agricultural extension workers (Cooper and Graham, 2001; Scheer et al., 2006). It seems that nine areas of professional core competencies adequately address the needs of demand-driven, decentralized, pluralistic and participatory extension systems, they are:

- **Plan well:** An extension worker needs to be able to plan a program meticulously. Expanding participation not just in terms of numbers but also participation by different groups within a village and publicizing the meeting or field experiment are essential. While planning an extension program, an extension worker should know who the beneficiaries and stakeholders are, what resources are available, what national agricultural strategies are in place and where the emphasis of the government is. Doing a needs assessment, especially involving the poor and female farmers and young people, can fine-tune a program to meet local needs.
- **Coordinate and collaborate to implement:** Effective extension workers are able to implement extension programs by coordinating activities and collaborating with development partners within their assigned area or communities by building teamwork, involving local stakeholders and negotiating when conflicts arise. Reaching and involving members of marginalized groups -- such as women and members of minority groups -- in innovations through the participatory method is another important skill that extension workers should practice. Touch and feel never fail, so it is effective to allow local people (farmers) to try their hands in the field so they feel confident to adopt new technologies (equipment, inputs, etc.) when the extension worker is not around.
- **Be humble:** Farmers already know a lot about their farming system, and you as an extension worker need to respect this. You are in the field to serve farmers' interests and further their aspirations, so find out what they know and build on that. If you seem to be a "know-it-all," there is little chance that a farmer will express herself/himself.

- **Communicate confidently:** An extension worker has to be a good communicator so that he/she is able to persuade people to change their methods of cultivation or adopt innovative practices or technologies. It is no simple task. An extension worker should effectively listen to what his/her audience says and use language and content that members of the target groups can understand. Learn and practice well so all doubts are taken care of before you reach the audience.
- **Build public relations:** The next stage of good communication is public relations. You need to be able to build good relationships and rapport with people so they are comfortable to talk to you, ask questions and believe you. The stronger the relationship and feelings of trust, the quicker the adoption of the recommended technology and practices.
- **Value the diversity:** A village has multiple identity groups in terms of wealth, ethnicity, caste, language, tribe, etc. An extension worker has to be sensitive toward these to ensure that a program appeals to a wide audience containing many identities and does not conflict with any religious/cultural belief or tradition. A Muslim farmer, for instance, might resist rearing a pig for religious reasons; tribal farmers might resist adopting a new crop variety because a traditional variety is being cultivated there. These points need to be taken into consideration when planning and delivering extension services.
- **Acquire educational and informational technology:** Information communication technologies (ICTs) such as mobile phones, texting, conference calls, computer, Internet, email, etc., are increasingly being used in extension services. The ICTs are effective in reaching a large number of users in a short time (Aker, 2011). An extension worker should acquire knowledge and spread these technologies and the knowledge to use them among local people.
- **Evaluate to show results:** Resources are limited, and there is always competition for resources. The government and funders tend to give priority to those programs that can show that they have succeeded in reaching and benefitting previously unreached groups. An extension worker has to become aware of the programs launched in his areas and evaluate their success to avoid repeating others' mistakes and learn what did work.
- **Update knowledge:** What one communicates depends on what he/she knows, so an extension educator should be aware of relevant research happening in various parts of the country, or even around the world, to be able to address the farmers' real needs. Spending time on reading up on recent research can help you choose technologies and practices that are well-suited to the local environment and people, and sustainable over the long term.

As we explained earlier, extension educator competencies are generally classified into two groups: technical skills and competencies such as knowledge and skills in pest management, soil testing or fertilizing a field crop; and process skills and competencies that help extension workers perform their tasks well. Process skills are also called **soft skills**.

What Process Skills and Competencies Do Extension Workers Need?

A survey of extension professionals was conducted in Cambodia, India, Malawi and Nepal to help determine the essential competencies for effective front-line extension workers in those settings. We have grouped these competencies under four major extension programming functions. The numbering corresponds to the numbering of each tool in the chapters that follows:

Program planning

1. Conduct needs assessments
2. Prioritize needs and problems
3. Identify stakeholders and engage them in extension programs
4. Acquire and allocate resources (resource mobilization)
5. Conduct the nominal group technique
6. Conduct community forums
7. Conduct brainstorming exercises
8. Identify market opportunities
9. Design services based on gender analysis
10. Develop a work plan
11. Develop a grant proposal

Program implementation

12. Conduct farm and home visits
13. Conduct method and results demonstrations
14. Organize farmer field schools
15. Organize field days
16. Establish a model village
17. Conduct meetings effectively
18. Manage conflict
19. Manage time
20. Manage groups and teamwork
21. Understand group dynamics and/or facilitate groups
22. Write field reports

Program evaluation

23. Design survey instruments
24. Conduct surveys and personal interviews
25. Conduct participant observations
26. Conduct rapid rural appraisals (RRA) and participatory rural appraisals (PRA)
27. Conduct focus group discussions
28. Write extension evaluation reports and share results and impacts

Communication and informational technologies

29. Make effective presentations
30. Communicate effectively with community leaders
31. Organize extension campaigns
32. Write for newspapers or mass media
33. Make good use of information and communication technologies (ICTs)/access and use web-based resources

It should be noted that some skills and competencies could be used for multiple programming functions. For instance, a specific competency such as PRA/RRA or focus group discussion can be used in both the planning and the evaluation stages.

The remaining chapters discuss program planning, program implementation, communication and effective use of ICTs, and program evaluation. Each chapter describes the domain and lists specific process skills and competencies required to perform the extension task effectively.

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6. Planning an Extension Program

Before addressing the specific tools for extension undertakings, it seems appropriate to spend some time on overall program planning. Therefore, this chapter focuses on extension program development and the process to follow in developing a program plan for extension or community development. Successful programs keep the people who are the beneficiaries at the center of the process. They involve local institutions and stakeholders in all phases of program development.

Planning is the bedrock for planned change. Front-line extension workers are expected to develop extension programs to address local food production or community development needs.

Planning involves three things: studying the past, analyzing the present situation and forecasting the future course of action. This is true when you plan a program for extension or rural development. Planning is a process to bring about a desirable outcome or result. A good extension program provides a clear and concise written statement of what will be done, why, when, with whom and where. To put it simply, it is a process for developing a blueprint of our goals, methods, procedures, activities and expected results.

Program Planning in Extension

An extension program is more than a single activity or event. It consists of a set of activities that are intended to bring about a sequence of outcomes among the members of the target audience, often referred to as clients. In an extension setting, program planning is the process by which members of an organization or community envision its future and develop the processes and operations necessary to achieve that future. The process is dynamic -- leaders or managers of the planning team/group continually review it and make adjustments to address changing contexts such as socioeconomic, financial and community/client needs.

Elements of a Good Extension Program Plan

- Clear and measurable objectives.
- A focus on needs of the target audience.
- A list of activities relevant to achieving the stated objectives.
- An outline of inputs and resources (funding, staff, partners) required for the program.
- A clear plan for implementation — when, where, how and to whom.
- A plan for evaluation.

Types of Extension Educational Programs

Planning is essential to find solutions for community problems or issues or to assess needs. Boyle (1981) described three types of educational programs:

Developmental Program

The goal is the empowerment of local people to define and solve their own problem, issues or needs. Stakeholders and beneficiaries are involved in all phases of the program—planning, implementation and evaluation. The extension educator works closely with the local people to identify resources and support, implement the program and evaluate it. His/her role is to facilitate the process of planned change. A rural or community development program with genuine participation of beneficiaries in the program's decision-making process is an example of an effective development program. Effectiveness is measured by positive change on selected indicators resulting from delivery of the program to the intended audience.

© M. Suvedi. Method demonstration on soil preparation before planting a fruit tree.

Institutional Program

An institutional program aims to further the growth and development of an individual's basic knowledge, skills and abilities. The program's content is derived from the knowledge base of the institution or discipline. As program developer, an extension educator assesses learning needs, identifies instructional content areas, provides instruction and evaluates the program. Pre- and in-service training and certificate programs are examples of institutional programs. Effectiveness is measured by learners' perceptions of the quality of instruction and number of trainees completing the training.

Informational Program

The primary goal in this sort of program is an exchange of information with the intended audience. As a program planner, the extension educator identifies the information needs of his/her audience; prepares information packages such as print information, radio or television programs; and disseminates information through various media or channels. Effectiveness is measured by the extent of distribution to and the use of information by the intended audience.

© M. Suvedi. Farmers attending a result demonstration on vegetable production.

As an extension educator, your overall aim is developmental – empowering the target audience with knowledge and skills. To reach and teach your audience, you can make use of existing institutions to build local capacity and use media and information and communication technologies (ICTs).

Qualities of an Extension Program Planner

- Understands the philosophy and mandate, history, traditions, related legislation and organizational structure of agricultural extension or advisory services in your country.
- Ensures that the planning process is participatory and that members of minority groups, women and dispersed audiences are engaged in the planning process.
- Makes sure the local leaders, partners or supporters of your program understand the reasons for and the importance and benefits of planning.
- Understands how the planning process is structured and facilitated.
- Reaches decisions about the nature and content of the overall program.
- Stimulates farmers' interest and desire to adopt a new idea or practice.

Steps in Program Planning

Literature on program planning suggests a cycle involving multiple steps for program development. Diehl and Galindo-Gonzalez (2014) suggest an eight-step process for planning or refining an extension program. It should be noted, however, that extension programming is not a linear process. A successful extension program follows a dynamic process with continual review

of the situation, stakeholder consultation and resource mobilization. A summary of the major steps are shown in Figure 5, and the steps are described below.

Engage stakeholders in planning dialogue: Identify a diverse set of stakeholders such as farmers, agribusiness operators, representatives of government agencies, community leaders, etc. Talk with each individually and invite him/her to serve in the advisory and/or planning committee representing the community. Stakeholder engagement has many benefits -- you will get a variety of perspectives and opinions; and when done properly, it establishes support and local ownership of the program.

Conduct a situation analysis: This is where program planning actually starts. You need to understand where the program is needed; who the program beneficiaries are; what strengths, weaknesses, opportunities and threats exist in the community; and what ancillary factors are necessary for the program's success. The situation analysis should deepen your understanding of the various needs and issues facing the people in the community or your intended audience.

The situation analysis may involve consultation with key informants and experts and the review of secondary data from census or previous reports. It involves needs assessment and prioritization.

Once you develop a list of priority needs, share them with the stakeholders and your organizational representative -- district director, project manager or program director. Get their inputs and feedback on the list of priority needs.

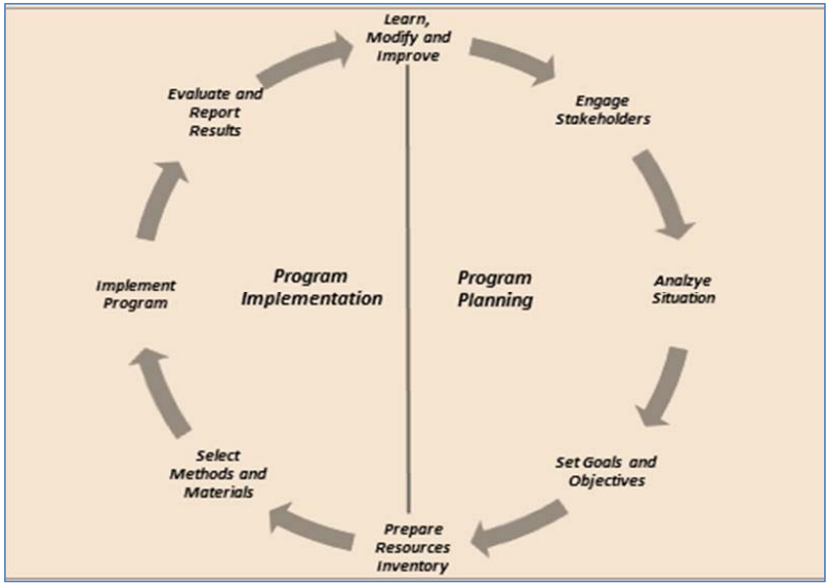

Figure 5. Program development cycle.

Develop program goals and objectives: Now, together with the beneficiaries, you develop program goals and objectives describing how participants or beneficiaries will change as a result of the program. Program goals are broad; objectives are more specific and targeted. Good objectives are:

- Specific -- Be specific and clear about what will be achieved.
- Measurable -- Can you measure whether the objective has been met, partially met or not met?
- Achievable -- Is the objective achievable given the funding, staff resources and time available?
- Relevant -- Is it clearly linked to the desired result?
- Time-limited -- Does the objective contain a target date for achieving the desired result?

Inventory resources: What resources are needed to make this program successful? Resources may include:

- Human/social -- program advisors, support workers, volunteers, consultants.
- Material -- new information and technologies; money and what it can buy -- e.g., vehicles, computers, copy machines, notebooks, staff travel.
- Services -- facilities for holding meetings and workshops, office and storage space.
- Instructional -- demonstration plots, improved seed, pesticides and other chemicals, audiovisual equipment, printed materials.

Select educational methods and materials: Now it's time to plan specific ways or methods by which you can maximize the program's impact given the human, material, services and instructional resources you have for your program. Specifically, what kind of educational activities and instructional resources would be appropriate for the content you plan to deliver to your audience? Is a method demonstration an effective way to teach the audience? Should you plan a tour of a research station where farmers could observe the benefits of adopting a new maize variety? Should you show a documentary film or hold a group discussion?

> You should consult with your local stakeholders -- seek advice from staff members of local cooperatives, an agricultural research station or other organizations. Select the most effective method or combination of methods to reach and teach your audience while keeping the cost within your budget.

An effective way to present the program plan is to develop a program logic model. Key elements of the program logic model are shown in Figure 6 below.

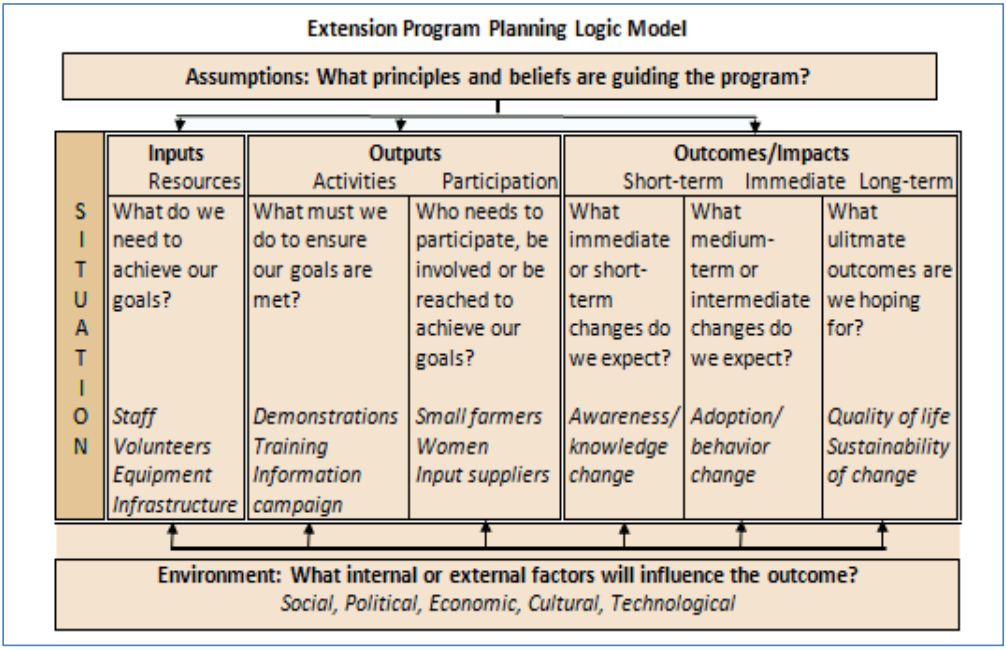

Figure 6. Extension program planning logic model (adapted from the University of Wisconsin Extension, 2014).

Implement program: Now you carry out the plan in the target communities. Remember that an extension program consists of a set of activities designed to lead to desired changes among the members of the target audience. Effective implementation involves:

- Promoting the program via interpersonal methods, ICTs and mass media as appropriate.
- Keeping an official record of the program activity (e.g., program announcements, participant attendance or registration showing gender, ethnicity or tribe).
- Involving key people, specialists and advisors as much as possible.
- Collecting end-of-activity feedback from participants or beneficiaries.

Evaluate and report results: Evaluation is a systematic investigation of the worth or merit of a program. It provides information to help improve the program. Evaluation is not a separate activity -- it is integrated into the program itself. Planning, implementation and evaluation are all parts of a whole, and they work best when they work together.

Evaluations are of two types:

Process (formative) evaluation is conducted during the program implementation to provide the program staff evaluative information useful in improving the program. Evaluation focuses on what is working, what needs to be improved and how it can be improved. You may also be interested in knowing the gender mix of participants, the suitability of language and instruction used, appropriateness of the timing of events, the quality of support materials, the suitability of physical facilities, etc.

Summative evaluation is conducted toward the end of the program or project and made public to provide program decision makers, stakeholders and potential consumers with judgments about the program's worth or merit in relation to stated goals and objectives. Evaluation focuses on what results occurred, with whom, under what conditions, with what activity/training and at what cost. The information is used to make decisions about the program's future.

Learn, modify and improve: Program development follows a cycle and is a continuous process. At the end of each program or project, lessons learned can be integrated to develop the next program. Formative evaluation is conducted at the end of each step, and feedback is used to improve the program and process. Evaluation provides useful information for planning the next cycle of extension programs. Sharing of evaluation results with stakeholders and community members is an opportunity for reflection, learning and program refinement. Therefore, use both formative and summative evaluation information to improve your program and to report your accomplishments.

Participation is the Key

Educational programs are successful when all persons affected by the program are involved in some way or participate in the program. There are various reasons for participation:

- It promotes local ownership of the program.
- It promotes democratic values -- people affected by the program should have a say about the program's what, why, who, how and when.
- It reduces the cost of the program.
- It minimizes conflict among groups and members of the community because beneficiaries and stakeholders are informed of the programs and programs are need-based
- It increases the chances of the program's success.
- It empowers local people by building their confidence in development work.
- It provides opportunity to learn together.

How can you maximize participation in program planning?

Participation can either be direct (all persons involved) or representative (a few are selected to represent the others). Representative inputs are easier to manage. Representatives should be identified and selected considering the community's diversity and inclusiveness. A good representative is one who understands and speaks for the opinions and perspectives of those s/he represents. So, maximize the number of representatives and stakeholders in the planning process and make sure all groups are represented.

Advice for Planning Extension Programs

It is essential that individuals planning extension programs be reflective and thoughtful. One way to do this is to ask yourself this question: are you addressing the needs felt by the people and recognized by extension workers, also known as expressed felt needs (Baker, 1984)? Often, needs felt by the extension workers but not known to the people (or unfelt needs) are included in the program. Further, are you addressing the root cause of the problem or working on symptoms of the problem? You can ask yourself if the felt need is the same as the real need. For example, farmers may articulate a need to increase income when the principal problem they face is one of recurring costs of debt, which eat away at their income. So what they really may need is a way to steer clear of debt or learn how to access lower interest bank loans. Teaching them to do loan paperwork may be the answer to their issue/need.

- **Judge the readiness of people to accept change:** If they are not yet ready to follow a piece of advice, adopt a new technology, or change their way of doing things or getting things done, find out what hinders the change.
- **Check for resources:** The human resources, skills, materials and money required and available to carry out the activities decided upon.
- **Choose an appropriate technology:** Often planning is done by the national government. Upon reaching a rural district or subdistrict, you'll want to interact with local farmers to find out what crops are grown and livestock raised, and what are the impediments to crop and livestock production. Simple solutions such as appropriate use of compost or farmyard manure or establishing produce collection centers with cold storage can improve farmer income and be environmentally friendly. Rainwater harvesting, for instance, has proved to be a life-changing innovation in some rural communities. Helping local people find appropriate solutions to their problems and needs is the first step toward sustainable development.
- **Plan an exit strategy:** Self-sufficiency is a goal of agricultural extension and advisory services, along with increases in productivity and efficiency. Suppose you are working on an extension program to promote adoption of high-yielding maize varieties. Once you achieve the targeted goal -- say, 50 percent adoption -- you may move to address the next priority need. To maintain and continue to expand the benefits of the improved variety,

the local people have to be organized through some institution – such as a cooperative or other group -- own the innovation and spread it among the late adopters. At that point, you can withdraw or discontinue the program because the beneficiaries are now independent of the outsider (you, the extension worker). Therefore, as an educator or change agent, an important part of your role is to build local capacity -- individuals and institutions such as producer groups and cooperatives. This is the path to sustainable development.

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Good Practice Tools for Participatory Program Planning

Tool 1: Conduct Needs Assessments

Need is a condition marked by a lack of something that is considered a requisite. “Need” is different from “want” in that “want” indicates a desire for something. Fear (1988) advised that asking clients what they want should not be confused with their needs.

When we conduct needs assessment, we identify the discrepancy or gap between where the community is now and where the community wants to be (Witkin and Altschuld, 1995). For example, average maize yield of local farmers is 2,000 kilograms per hectare, but local research and demonstration may show that farmers in the same setting may be able to achieve yields to 4,000 kilograms per hectare by using improved maize production practices. So, in this case, the yield gap between the present situation and the desired condition is 2,000 kilograms. The larger the discrepancy between the current situation and the desired situation, the greater the need.

Needs can be of various kinds -- felt needs, ascribed needs and normative needs. Baker (1984) divided felt needs into two categories:

- Needs felt by people and recognized by extension workers are called **expressed felt needs**.
- Needs felt by people but unrecognized by extension workers are **unexpressed felt needs**.

Ascribed needs are those defined or identified by outsiders, and they may or may not be present in the community. Donors or outside organizations, which often do not involve local communities in needs identification and prioritization, may focus on ascribed needs.

Normative needs are those that experts or extension workers believe people’s needs to be. Often, experts determine local needs on the basis of comparison with national trends, and these are called relative needs.

What are the major needs assessment methods?

Depending on the type of information needed and group orientation, Fear (1988) suggested the following needs assessment methods:

Group dynamics methods are designed to facilitate group- or team-based consideration of needs. Examples are nominal group process and focus group interviews.

Social networking method brings “state of the field” information to the attention of the extension educator who will assess needs. Examples are drawing information from association network and conference presentations.

Survey method is useful in generating ad hoc information about a population. Mail, telephone and Internet surveys are popular in developed countries. Personal interviews,

group-administered and key informant surveys are frequently used in the developing countries.

Social indicator method refers to the compilation and use of existing information (from secondary sources) to measure needs. Use of census information, newspaper reports/polls on community issues, and crime information data provided by service agencies are examples of social indicators.

In addition to the survey approach described by Fear (1988), Carter and Beaulieu (1992) suggest four other needs assessment techniques: the key informant approach, the public forum approach, the nominal group process technique, and the Delphi technique. Some of these approaches/techniques are described later in the manual.

Why do a needs assessment?

Most trainings are designed and implemented without seeking farmers' input, and so at the end of the training, the farmers ignore the recommendations given by the extension workers, which are not relevant or useful to the farmers.

What needs assessment does is identify a gap that is relevant to farmers and other target audiences. It helps focus the extension workers on innovations and other programming that are suitable and compatible with intended audiences/beneficiaries and can increase profitability for the specific group. For instance, teaching water-intensive technology to farmers who practice rain-fed agriculture is a mismatch because most of them cannot adopt the technology, which is incompatible with their situation. Hence compatibility is a defining feature behind a successful program. A thorough and well-done needs assessment results in more appropriate trainings and recommendations that offer solutions with greater potential benefit to the farmers. According to Butler and Howell (1980), "A community needs assessment is an excellent means of involving the public in problem solving and developing local goals" (p.3).

A successful extension educator considers these factors before s/he proceeds to conducting community needs assessment. Involving volunteers in needs assessment can help keep the cost down as well as provide extension workers with convenient interpreters of local contexts. Involving stakeholders and/or their representatives will also help develop a sense of local ownership of any program resulting from such needs assessment.

Basis for the Selection of Needs Assessment Method

What is your agency's development philosophy? How important is involving the community in needs identification? Does the community have any definite preferences?

- How much time do you have to conduct the needs assessment?
- How much money is available to complete the task?
- What is the level of staff expertise to conduct the assessment?
- Are resource persons available to assist in the needs assessment?
- What is the past experience in conducting needs assessment?
- What are the political considerations and future plans? Are local leaders and decision makers open to conducting a community needs assessment? Do they have commitments to address local needs and problems?

What kind of information can be collected?

The second step in performing a needs assessment is to decide what you hope to learn about your community and what kind of information you plan to collect.

Historical development information helps you understand how the community became what it is today and provides insights into the kinds of information to collect. Conducting a community forum with the community leaders and senior citizens is a good way to do this.

Demographic information includes the size of a population and the ages, races, castes and genders of its members. The process of collecting this information helps in understanding the demographic breakdown of the community and recording the changes over a period of time in such areas as the community's growth patterns and population distribution and migration. Public records can be used for collecting demographic information.

Political and legal structure information helps you understand the community-based selection of leaders and key players in development. A survey would be useful in finding such information.

Economic information helps identify your community's economic base and resource distribution. A survey would be useful because people would be uncomfortable speaking about it in a public forum.

Social, cultural and educational institutions information will help you determine your community's values and social patterns. The method could be key informant interviews or focus group discussion with key officials in these organizations.

Geography and infrastructure information includes roads, electricity, irrigation systems, total project area, etc. This information is important in learning how the infrastructural development has occurred, how big the focus area is, what type of landscape it has, etc.

How to conduct a needs assessment

Although there is an array of ways to go about doing needs assessment, we believe that the following five-step approach is useful and appropriate for extension workers in most developing country contexts.

Step 1. Identify a representative area

To conduct a needs assessment, sample a village that is representative of the section in which a needs assessment is planned. Using secondary data can help in comparing crop or livestock requirements with environmental factors of the area such as rainfall, soils, topography, etc.

Step 2. Plan the assessment

Carefully identify who will help with the survey (include farmers, researchers, extension workers). Visit the field and talk with farmers to learn what farmers perceive as problems. Visit farmers' fields to diagnose problems. Ask them about issues that affect their farming activities, such as production, inputs, postharvest, marketing and price issues.

Step 3. Analyze and prioritize problems

Use field observations and input from the discussions with farmers to assess and prioritize problems.

Step 4. Identify the causes of the problems

Correct solutions depend on correctly identifying the root cause of the problem. For example, a problem of field water could be a result of poor ridge alignment rather than water availability. Work out the true cause of the problem together with the farmers before recommending any solution to them. Actually involving the farmers in their fields and discussing with them how poor ridge alignment results in water runoff would help address the example given above.

Step 5. Develop possible solutions and recommendations with the farmers

Make sure that farmers own and accept the solutions developed jointly with them. Carefully discuss options with them and see how possible solutions might or might not be compatible with their systems.

Some important questions to keep in mind and to ask multiple times during needs assessment:

- How would you like to see change in your group in the next five years?
- Are there needs that are not being met at the moment by our programs and services?
- Are changes taking place in your group that concern you? What are they? What might be done about those changes? What programs do you know of that people are trying in other places that we should try in your group?

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Tool 2: Prioritize Needs and Problems

Prioritizing is a process of ascribing value or importance to each item and then putting them in descending or ascending order of importance. In that sense, it is a selection process. To begin, the facilitator should determine if one sort or more than one sort is needed. An elimination process might be required for long lists of more than 12 to 15 items. Prioritizing should be done by a group of participants, not the facilitator only. Figure 7 displays four scenarios for priority setting and recommendations for practice.

In setting priorities, you need to consider two factors (Sork, 1979):

- **The importance of the need:** For instance, groundnut is grown as a cash crop by some farmers, but maize is grown by all households and low yield has been an issue. That makes increasing maize yield the higher need.
- **The feasibility of meeting the need:** Feasibility can involve factors such as season, funds and political will. Suppose the months when the project is ongoing are the monsoon months, in which case constructing a road might be very difficult. So you might have to choose building a well instead. Or the village leader might want a well more, so in terms of feasibility, a well might be what you decide to make.

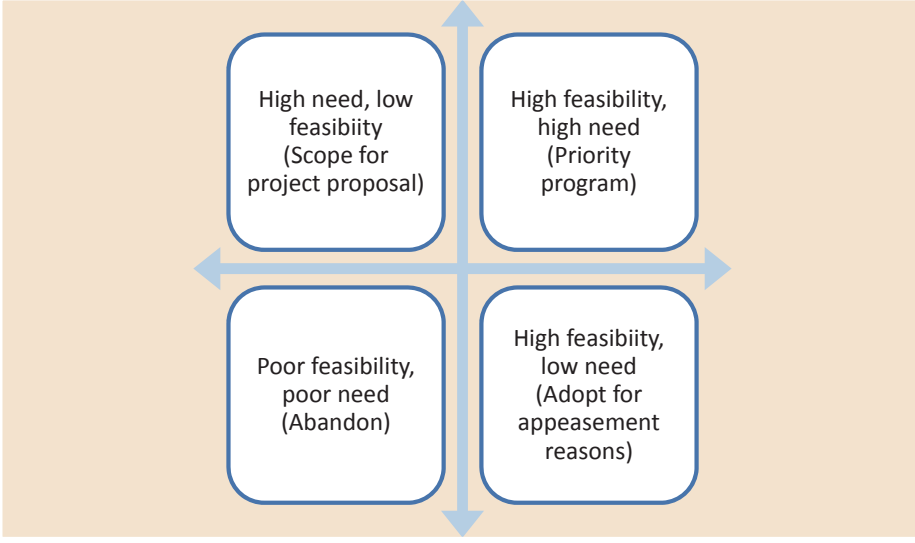

Figure 7. Priority setting of needs.

The importance of a need can be determined by the following factors:

- Mission relatedness -- Is the need identified a good "fit" to the mandate of your organization?
- Urgency -- Does the need identified call for immediate action?
- The size of the gap -- Is the discrepancy between what is there now and where we want to be large or small?
- The number of people affected -- How many people have identified the need? Some needs, if addressed well, may benefit many people; others serve a limited number of families.

The feasibility of a need can be determined by the following factors (Oakley and Garforth, 1997):

- Acceptability -- The community's willingness to make the changes needed to move from the present state to the more valued or preferred state.
- Resources required -- Time, money, staff and leadership expertise required to meet the need.
- Forces of change -- What is the balance of forces working for and against the proposed change? If strong opposition exists, it is prudent to wait until greater support comes through.
- Perception of feasibility -- How do community people and stakeholders view the possibility of success?

Various methods for prioritizing:

Casting straws or votes

- Each member gets five straws, representing five votes.
- Each member is asked to distribute the straws (votes) among the items listed. One can place all five straws on one item or distribute them among two or more items.
- Each person indicates his/her vote by marking the item (usually listed on a flipchart, blackboard or transparency) with a stroke or dot (whatever is directed).
- The items receiving the top number of votes (symbolized by straws or strokes or dots) are selected as those with the highest priority.

Greatest hits

- Present the total list of items to each with the instruction to divide the list into three parts -- those with highest priority (importance, urgency or value), moderate priority and low priority.

- Each person makes his or her selection by placing a number or colored sticky dot on the list.
- A tally is taken. The top third of the list—items chosen by most as highest priority -- is identified and listed separately.
- A second discussion can follow to determine a cut-off point. Should items with just a few "highest priority" votes be included? How many items are sufficient?

Secret ballot

- Number all items on the list.
- Each participant indicates his/her preference by writing the number of his/her preferred item secretly on a piece of paper.
- Tabulate the results of the secret ballot.

References

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Tool 3: Identify Stakeholders and Engage them in Extension Programs

Stakeholders are people or organizations who are directly or indirectly affected by the outcome -- positively or negatively -- or those who can influence the outcome of a proposed intervention (Rietbergen-McCracken and Narayan, 1997). Agriculture development programs have many important stakeholders -- farmers, input suppliers, credit agencies, education/training providers, marketers, processors and distributors, agricultural research professionals and others. To successfully provide education for local people, extension workers need to coordinate among these stakeholders.

According to FAO (1999), stakeholders can be classified as:

> **Primary stakeholders:** The people or groups that are directly affected, either positively or negatively, by either the efforts or the actions of an agency, institution or organization.
>
> **Secondary stakeholders:** The people or groups that are indirectly affected, either positively or negatively, by the efforts or the actions of an agency, institution or organization.

As a first step, a successful extension educator identifies the stakeholder of her/his extension program. What are the interests of these stakeholders? How will they be affected -- positively or negatively -- by the program? Which are the primary stakeholders? How influential are the various stakeholders in achieving the goal of the extension program? As an extension educator, you want to know what role each stakeholder can play, what resources each can bring to the program and how each can contribute to the program's sustainability.

© M. Suvedi. Public and private sector stakeholders discuss extension strategy in Nepal.

Why identify and analyze stakeholders and their interests?

Identifying stakeholders starts as you begin the program/project planning process. A participatory planning effort that involves representation of as many stakeholders as possible has a number of advantages:

Diverse ideas: Involving multiple groups brings out more and more diverse ideas than developing an effort by working with a single organization or a small group of like-minded people.

Multiple perspectives: Including varied perspectives from all across groups provides a holistic picture of how the project will affect the community and outline potential pitfalls and assets.

Team building: Making_all stakeholders an integral part of development process -- planning, implementing and evaluating – builds widespread support for the project.

Credibility: Involving and attending to the concerns of all stakeholders establishes your organization as fair, ethical and transparent, thus increasing its credibility.

When to do the exercise

For all purposes, identifying stakeholders and their varied interests should be among the first steps on your agenda and should be conducted at the planning stage. Their knowledge of the community and understanding of its needs are invaluable to reach the right people, be inclusive and reach the necessary people in the shortest time possible.

How to conduct stakeholder analysis

For a detailed understanding of stakeholders and their role in any program's various stages, Rietbergen-McCracken and Narayan (1997) advise following a four-step process to identify and analyze stakeholders, their multiple interests, their influence and their participation in the program.

Step 1: Identify key stakeholders

- Assess who stands to gain potentially.
- Who might be adversely affected?
- Are there vulnerable groups? If so, identify them.
- Divide stakeholders into two groups -- those who will support and those who will oppose the program.
- How are these groups interrelated? Are they vertically organized, or are some equal in power and resources while others are not?

Step 2: Examine each stakeholder's interest and the potential impact of the project on these interests.

- What are the stakeholders' expectations of the project?
- What benefits are likely to accrue to each stakeholder group?

- What resources are the stakeholders able and willing to mobilize and invest?
- Do some of the interests harbored by a stakeholder conflict with project goals? Identify those so you can consciously tackle them.

Step 3: Assess stakeholder influence and importance

Each stakeholder will have some level of power, meaning the ability to influence others' actions and decisions. This can act as an advantage or a disadvantage in any stage, be it planning, implementing or evaluating. The decisive group will try to gear the program toward their interest. To be able to build consensus and work for the common good, these influences need to be minimized.

For each stakeholder group, assess its:

- Power and status (political, social and economic).
- Degree of organization.
- Control of strategic resources. For instance, ownership of land near the hill is decisive in watershed development, or ownership of land near a highway plays a significant role in connecting the village to market. So those who own these patches of land have to be taken on board.
- Informal influence. For instance, within caste, clan and tribe groups, such personal connections often prevail over formal discussion and decisions made.
- Power relations vis-à-vis other stakeholders.
- Importance to the success of the project -- how crucial is it that a group benefits from a project for the project to succeed?

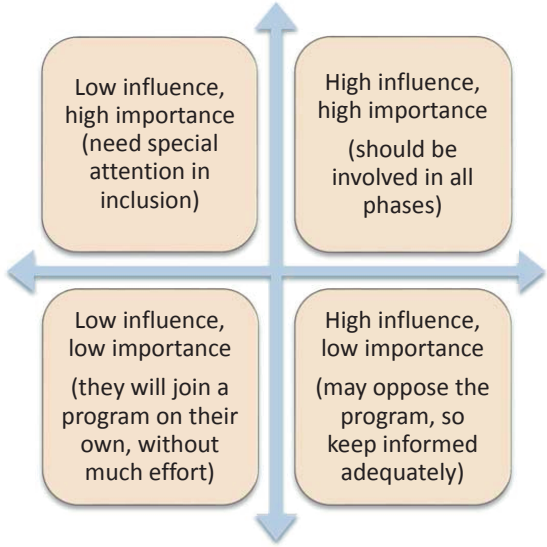

Figure 8. Four kinds of stakeholders, based on two parameters -- influence and importance.

Step 4: Outline a stakeholder participation strategy

Plan stakeholder involvement according to:

- Each stakeholder's interests, importance and influence.
- Make a particular effort to involve important stakeholders who lack influence -- they need the benefits of the program.
- Keep motivating the participants by appreciating them for participation throughout the project cycle.

How to keep stakeholders engaged?

As shown in Figure 8, stakeholders in the upper right-hand quadrant of the figure are important. Inviting them in the planning stage is only the first step. Listening to them is important but not sufficient. Having them involved in all phases of program is essential. This helps in mobilizing local resources (staff time, facilities or funding support) in program implementation and evaluation, which is key to a successful extension program.

References

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Tool 4: Acquire and Allocate Resources (Resource Mobilization)

Resource mobilization refers to pooling resources from various sources and using them on the programs and beneficiaries that need them the most. Resource mobilization is increasingly becoming relevant in agricultural extension services because of the growing competition for resources, dwindling budgets and increasing demand for accountability. Resource mobilization is even more important in developing countries that have been grappling with low agricultural productivity and low extension efficiency.

According to Ferguson and Heinz (2014b), resources (or assets) are of five types:

- Capacities and skills of individuals (skills, training, influence, knowledge).
- Local public and private non-governmental organizations and institutions.
- Physical assets (land, buildings, equipment, vehicles, roads, irrigation canal, etc.).
- Leadership skills and personal networks.
- Support from outside donors (private and public).

Developing a plan or strategy for resource mobilization can help tap resources from multiple sources, efficiently allocate resources where they are most needed, and increase independence and flexibility to implement programs. As an educator, you have to assess the local contexts well, establish contact and trust with various stakeholders, explore funding resources options and seek funding, prepare a resource mobilization plan and utilize available resources in the most effective way.

Why to mobilize resources

- It fosters coordination with stakeholders and helps establish trust with clients.
- It may lead to synergy, efficiency and effectiveness in programs, resulting in success and sustainability.
- It provides a plan with a timeline, intended results, activities to be done and resource partners, and outlines their share in the targeted program.
- It helps allocate resources where they are needed the most.
- It prevents a piecemeal approach, in-house competition and resource duplication.

Resource mobilization is an integral part of program planning. The guiding principles for resource mobilization are increasing efficiency and effectiveness, building synergy, fostering innovation and strengthening capacity.

Common ways of funding extension services

Rivera (2007, as cited in Rivera et al., 2009) summarized four ways commonly used to fund agricultural extension services (Figure 9):

Public funding and publicly provided services: The government is responsible for funding and providing services. Most developing countries follow this approach. Most social justice and egalitarian policies and schemes are under the public sector, such as services for regulation, research, poverty reduction, etc., which cater to the common good. However, relying on government for every extension service is neither feasible nor sustainable.

Public funding, privately provided services: The government, which is the funder, provides resources to private sector organizations or NGOs and asks them to deliver the extension services. The government is expected to monitor the services provided by private and other providers.

Public sector cost recovery: The government collects fees or taxes from producers or their organizations. In return, the government provides services to farmers.

Private funding and privately provided services: This approach is one of commercialization, which shifts the responsibility of providing extension services from the public to the private sector entirely. Commercial farmers are willing to pay for services, but smallholder farmers, who constitute the largest share of most farming populations in developing countries, cannot afford to pay for services and hence tend to get neglected. Some European countries are also employing this approach.

		FUNDING		
		Public		Private
DELIVERY	Public	**Public sector funding and delivery** The government funds, and its extension agency provides extension services.		**Public sector and cost recovery** Producers/associations pay fee or tax to cover costs of extension services.
	Private	**Public sector funding, external extension providers** Government funds, but responsibility for service delivery lies with private providers.		**Private funding and service delivery** Commercialization -- private entities both fund and provide services.

Figure 9. Funding scenarios for extension services.

How to mobilize resources?

As an extension educator, you should be mobilizing available resources to educate, facilitate and empower farmers, and enable them to be active partners of extension services. Swanson and Rajalahti (2010) offered the following suggestions on extension resource mobilization:

Stage 1: Preparation

- Identify all major organizations that provide agricultural extension services and identify their basic features.

- Examine the clientele being served: farmers, lead farmers, their numbers, genders; the providers' areas of expertise and the extension methods used.
- Prepare a human resources profile of your area: technicians and experts within your office network, in research and educational centers -- their number, their expertise, gender and time that each can devote to various tasks.
- Determine the source, allocation and sustainability of financial resources. Determine how much can be utilized for the program.
- Assess organizational resources and support services: physical facilities, vehicles, ICTs.

Stage 2: Allocation

- Engage education and research teams from government departments or universities with lead farmers to assess human resource requirements. They can contribute toward training and demonstrations of new innovations. Seek their participation.
- Find out who can contribute monetary resources and how much. Both human and monetary resource contributions create feelings of ownership of the program, which have proved to be beneficial in the long term.
- Negotiate for more resources where required, and try to cover as much as possible of the project cycle.
- Factor in institutional development: the aim should be organizing farmers into groups -- self-help groups and cooperatives, etc. -- to build social capital that will work as an asset for all.
- Promote a participatory and pluralistic approach in extension services: engage yourself and stakeholders in information, experience and knowledge sharing to promote the innovation.

Stage 3: Formalization

- Once an arrangement is made among the various stakeholders, write the details down.

References

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Tool 5: Conduct the Nominal Group Technique

The nominal group process or technique (NGT) is a way to identify and prioritize ideas or issues. It is a structured variation of a small-group discussion to reach a consensus (Sample, 1984). It is very similar to brainstorming with two added advantages: NGT gathers information by allowing individuals to think silently and then respond to questions posed by a moderator, and the decision on choosing an idea is made by secret ballot.

The process prevents the domination of the discussion by a single person, encourages all group members to participate, and results in a set of prioritized solutions or recommendations that represent the group's preferences (Carter and Beaulieu, 1992). Its strength is based on the power of a group to generate, explore and communicate ideas. NGT involves problem identification, solution generation and decision making (Butler and Howell, 1980).

When to use nominal group technique

- When there is concern about some members not participating.
- When some group members are much more vocal than others.
- When the group does not easily generate quantities of ideas.
- When all or some group members are new to the team.
- When the issue is controversial or there is heated conflict.

Step-by-step guide to nominal group technique

Andrews and Vlasin (2000) describe a five-step process:

Step 1: Form small groups

- Each group should consist of six to eight persons.
- Encourage the mixing of people of and from a variety of roles or organizations.
- Ask each group to select a leader and a recorder.

Step 2: Explain the procedure at the start

- Explain the subject/question for discussion and the time available. Clarify the statement if everyone does not understand it.
- Ask each group member to think silently about the topic and then write down as many ideas as possible. Give 5 to 15 minutes for the process.

Step 3: Each member gets a turn

- Each member in turn states aloud one idea. The team leader records it on the flipchart.
- No discussion is allowed, not even questions for clarification.
- Ideas given do not need to be from the team members' written lists only.

- A member may pass on his or her turn and then add an idea on a subsequent turn.

Step 4: Small groups present ideas to big group

- Within the small groups, ask each group to choose its top three to five items to present to the larger group. To do this, each individual has to vote on his/her top choices and tally with all others.
- Each group leader should present these top choices to the large group. The facilitator should list these items on a flipchart or board so they are visible to all.
- Encourage open discussion: it can clarify meanings, explain logic, and raise and answer questions for better understanding, or state agreement or disagreement.
- Continue to ask the groups until all members get a chance. You can set a time limit in the beginning to know when to finish.
- To change the wording of an item, seek permission of the originator.
- To delete any idea from the list, all participants must agree.

Step 5: Final voting and debriefing

- Members vote again on their top choices of ideas by secret ballot, writing on the board or responding verbally during a go-around. Each person may be allowed one vote only or more than one. The totals should be tallied and summarized.
- Debrief the activity by asking participants to share their comments about the process, their satisfaction with the results and/or their satisfaction with the process.
- Under the round-robin rule, each individual discusses only one idea at a time. Discussion should be equally balanced among all ideas. The facilitator should not allow discussion to turn into argument. The primary purpose of the discussion is clarification.
- Keep all ideas visible. When ideas overflow to additional flipchart pages, post previous pages around the room so all ideas are still visible to everyone.

References

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Tool 6: Conduct Community Forums

The community forum is used in identifying the specific needs of a community and for finding ways to address those needs. A community forum fosters participatory democracy at a local level (Khamis, 2000), which is a goal for development. It involves gathering community members to deliberate issues and find solutions to the issues in a majority consensus manner.

How to conduct a community forum

The role of the extension worker is to moderate and facilitate but not to participate. The steps that a moderator should take in conducting a community forum are:

Step 1

- Employ a pre-forum questionnaire and/or checklist to guide the moderator during deliberations (optional).
- Devise strategic seating arrangements to separate members from the same cultural groups or factions.
- Welcome all participants.
- Provide an overview of the discussion topic. (Note: forums work best when one specific issue is given -- e.g., “diseases affecting kidney bean” rather than “legume diseases.”)
- State the ground rules that all participants will have to abide by. Emphasize that the forum is not for debate but rather for working toward a decision.

Step 2

- Provide participants with facts on the issue that will set the stage for the deliberative process.
- Ask participants to share experiences related to the issue.
- Facilitate the deliberation process (guide the flow of conversation, ask questions).
- State options that arise.
- Keep track of time.

Step 3

- Allow time for reflection. This allows participants an opportunity to look back on what they have learned and how the process may have changed their thinking.
- Discuss all comments and ideas from the group.
- List steps that need to be taken next.
- Fix a date and a venue for the next meeting.

- Employ a post-forum questionnaire and/or checklist to revisit ideas and guide the moderator during the follow-up forum (optional).
- Write a report of the discussion for documentation.

Common questions for community forums

The National Issues Forums Institute (2001) recommends the following questions for community forums:

- What does the community regard as valuable? (All participants' opinions, including youth opinions, should be considered.)
- Are there any costs or consequences associated with the options?
- What are the conflicts in the issue that we have to work through?
- Can we find any shared sense of purpose or define how our interdependence is grounded for action?
- Record and summarize all comments. Nothing is more frustrating than to be invited to share ideas and then never know how those ideas were used. Make a serious attempt to lay out the next steps.
- Embrace the views of others and work through conflicts that arise.

Carter and Beaulieu (1992) suggest the following questions for extension workers to use during community forums:

- What are the most important needs facing our community?
- Why are these important needs?
- What have we done to help meet these needs in the past?
- Where have we failed in the past in our attempt to meet these needs?

References

Carter, K.A., and L.J. Beaulieu. (1992). *Conducting a community needs assessment: Primary data collection techniques*. Gainesville, Florida, USA: University of Florida.

Khamis, C. (2000). Establishing community forums that make a difference. *Local Economy 15*(3):264-267.

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Tool 7: Conduct Brainstorming Exercises

Brainstorming is one of the techniques used in problem solving. It is a form of group interaction that encourages and expects creativity and free thinking (Andrews and Vlasin, 2000). Brainstorming encourages active participation by group members and leads to generation, presentation and critical evaluation of a wide range of perspectives (Ferguson and Heinz, 2014a). Brainstorming is considered a key to effective problem solving. It works best with a group of people representing various interests and/or backgrounds. Even in specialist areas, outsiders can bring fresh ideas that can inspire the experts.

When to use brainstorming

- When new ideas are required to generate a large variety of possibilities -- e.g., goals, causes, concerns, resources, or approaches to address a problem or task.
- When there are multiple solutions to a problem.
- When information about a problem is confusing and held by several people.
- Brainstorming is most effective with groups of eight to 12 people. It must take place in a relaxed environment to generate creative ideas.

The extension worker acts as facilitator and performs the following tasks:

- Guide the session by stating the purpose and allowing wide participation.
- Consider and list every idea -- every contribution is worthwhile. Ideas might seem to be confusing or inconsequential, but they should be accepted.
- Encourage participation of all stakeholders, particularly the quieter ones.
- Do not interrupt anyone while he/she is talking, and avoid non-verbal communication to show disapproval.
- Give group members ample time to think. Hurrying a process can be counterproductive.
- Write ideas down one by one.
- Avoid showing favor to anyone -- it hampers honest participation.

How to conduct a brainstorming exercise

Step 1: State the topic and ground rules of the brainstorming exercise

Start by defining your problem or identifying the topic. The problem or topic definition should be concise and to the point, and exclude extra information -- e.g., in what ways might we improve bean production? How could we encourage more farmers to attend field days?

Structure the setting: It is possible for the entire group either to brainstorm or to break up and work in smaller groups. If the total number of participants exceeds 12, it is often more efficient to break up into smaller groups. They can discuss separately, then bring back their lists of solutions to be pooled with those of other groups to form one set of results.

Give yourselves a time limit: Around 25 minutes for a group of 10 is recommended, but allow for a buffer of 15 minutes.

Larger groups may need more time to get everyone's ideas out. Likewise, a complex topic might take more time. Alternatively, a ceiling on the number of ideas to be entertained or an upper limit on time could be fixed. Write the finish time on top of the board or flipchart for everyone to see.

Explain the purpose to the group: It is most important for participants to understand the purpose. This contributes to solving the problem. Reminding the group of the purpose during the process will help participants stay focused.

State the purpose clearly in the beginning. And from time to time, remind participants of the purpose for a fruitful discussion on the topic.

Consider and list every idea -- every contribution is worthwhile. Even way-out ideas should be accepted. Confusing ideas should be accepted. Even silly ideas should be accepted.

Step 2: Consider all perspectives/ideas

Ask for contributions/ideas: Participants speak about solutions to the problem or ideas on the topic while the facilitator writes them down for all to see.

Encourage people to take turns in giving ideas to expand participation.

Weed some out: Once the first round is up, ask the group to identify and combine like ideas and remove duplications. The group may also agree to remove ideas with little support.

Are any extreme solutions evident? Any trends?

Summarize: Ask two participants to summarize the results.

Step 3: Select the best ideas

Agree to the criteria for choice: Before choosing the best ideas, agree to and write down about five criteria for judging or prioritizing the ideas generated that best address your problem. Do

not forget to include cost. Cost is almost always an important parameter that should be introduced and considered.

Criteria should contain the word "should". For example:

"It should be cost-effective."

"It should be legal."

"It should be possible to complete within six months."

"It should be sustainable by farmers."

Select the top five ideas: Try to ensure that everyone involved is in agreement. Ask participants to give each idea a score between 0 and 5 points depending on how well it meets each criterion.

Once everyone has scored all of the ideas for each criterion, add up the scores.

The idea with the highest score should be the first one applied to address the problem or topic.

Keep a record of all of your best ideas and their scores in case your top-rated idea turns out not to be effective.

References

Andrews, M.P., and R.D. Vlasin. (2000). *Participatory extension management: Tools and techniques to maximize participation in extension*. East Lansing, Michigan, USA: Michigan State University Extension.

Ferguson, O., and K. Heinz. (2014a). *Brainstorming*. USAID-MEAS. Accessed at: www.meas-extension.org/tip-sheets/participatory-methods

Tool 8: Identify Market Opportunities

© M. Suvedi. Women displays the quality of her produce aimed for market.

Markets are a driving force for change. They determine the demand for and supply of commodities and services. Extension programs are effective when they link farmers to markets and help them understand market opportunities.

Extension workers need to be aware of and understand the risks that farmers are likely to face so that farmers making farm management decisions can reduce the negative effects of the risks associated with their decisions and farming practices. Understanding how markets operate allows one to understand the main sources of risk they face, typically production risk, marketing risk, financial risk, legal risk and human resources risk. Some forces influencing these risks include climate change, price volatility and the global financial crisis.

Farmers increasingly find themselves making decisions about the fundamental nature of their farming activities. For many farmers -- especially small-scale farmers -- farming has been about producing food for their families. But now, as the world around them changes and inputs are increasingly procured from the market, they are required to have cash. These farmers are faced with the need to become more entrepreneurial and market-oriented and run their farms as businesses.

Market-oriented farming is driven by making profits through selling farm products in the market on a regular basis. Market-oriented farms can still be strongly linked to farm households, but the goals and decisions for the farm are less directly influenced by the goals and decisions of the farm household. They are more influenced by markets, the prices for produce and the costs of farm inputs.

Much of the new work that extension is expected to perform focuses on promoting farm management (Kahan, 2013). Through this approach to extension, extension workers work to enable farmers to make choices depending on the finance, labor and land resources and markets available to them. The farmers may evolve from being small-scale producers to being business managers.

The role of front-line extension workers is undergoing a change in the face of global forces that are affecting agriculture. Traditionally, most extension workers come from backgrounds in agriculture, crops or livestock management, but their role has diversified to include involvement in management and marketing tasks. It is no longer sufficient to provide technical solutions to production problems because that cannot make farmers more independent. The ability to relate to a broader framework of what farmers want and opportunities and limitations that markets impose is as crucial as technical know-how to bring about positive social change.

© MEAS. Farmer taking produce to market.

How to develop market-driven extension

Collection of data: Extension workers should collect data on what others in the project area as well as in nearby areas are growing. Efforts should include observation for shifts in cropping patterns. Extension workers also need to be on top of information concerning market demand and supply to be able to properly support and assess decisions proposed by the farmers.

Information dissemination: The market information collected by extension workers should be shared with farmers so they can make good management decisions. For instance, suppose onion prices were high this year. That does not mean they will be high next year. In fact, high prices one year often lead to overproduction the following year. When the supply exceeds demand, the prices that farmers receive fall. An extension worker who understands such trends can advise farmers about the risks of growing large areas of onions the following year to protect them from low market prices.

Learn about all phases of the value chain: Farmers produce crops for markets that in many ways are connected to markets that feed people located far away, even on a different continent. It is thus imperative to understand all parts of the food supply system.

Input supply: Use of new inputs such as seeds and pesticides is growing. In addition to knowing what inputs are best, extension services providers need to be aware of the impact of prices and encourage collaboration between farmers and input suppliers to promote quality assurance.

Production: In addition to knowing the best technologies and production systems, extension service providers need to understand the concept of profitability and be alert to opportunities for achieving economies of scale through growth strategies (i.e., capacity expansion, replication and modernization). Working for big companies on contract has also proved to be lucrative in some cases, and extension workers can help negotiate the terms between farmer and company.

Marketing: Extension workers need to be alert to changes in the marketplace and their impact on production systems and postharvest operations.

Profit: Extension service providers need to be conscious of the factors that influence the profitability of a farm business and alert to opportunities to diversify, supply farm produce at lower cost, expand the size of the business, add value to the enterprise and differentiate the product.

© MEAS. Linking farmers to market is key to successful extension service.

Provide advice before farmers make long-term technology investment decisions: Machines such as hullers and tractors are big investments that might require a farmer to take out loans. An extension educator can serve as a source of information and an unbiased sounding board for farmers making investment decisions.

Facilitating farmer entrepreneurship: This requires farmers to organize themselves into producer groups or cooperatives (Kahan, 2013). A successful example is La Via Campesina, which started in 1993 and brought forth farmers' voices from four continents, and has been working since as a lobby. Similar groups can help build capacity among small farmers, who can then use various methods such as advocacy or lobbying to assert their position.

Reference

Kahan, D. (2013). *Market-oriented farming: an overview*. Rome, Italy: Food and Agriculture Organization of the United Nations.

Tool 9: Design Services Based on Gender Analysis

Gender is a social construct that refers to relations between and among sexes, based on their relative roles. Unlike sex, which is biologically determined, gender is socially constructed. It is defined differently among societies around the world and tends to change over time.

Gender roles are social expectations of tasks, responsibilities and behaviors that are considered appropriate for people of a particular sex. These, too, are context-specific and could change over time.

Gender relations are ways in which people of the same or different genders interact with one another. This means, in some societies, come to be recognized as men and as women. In many places, gender relations embody and justify unequal power relations (Manfre et al., 2012).

How to Conduct Gender Analysis in the Context of Agricultural Extension

Gender analysis is defined as "the systematic gathering and analysis of information on gender differences and social relations to identify and understand the different roles, divisions of labor, resources, constraints, needs, opportunities, and interests of various groups, including men and women, girls and boys, and transgendered persons, in a given context" (Manfre et al., 2013). The objective of a gender analysis in the agricultural extension context is to clarify how gender roles and relations create opportunities for and/or obstacles to achieving development objectives.

© M. Suvedi. Women do most farm work in Nepal.

Gender analysis can potentially be controversial. Visual tools have been found to be very effective in getting both men and women to focus on gender without any sense of challenge or threat. The tool described below provides insights into how access to and control of domestic and community resources vary according to gender. As the community goes through the process, it raises the awareness of community members about how assets are owned and distributed within the community. The tool can be used in a discussion or meeting where both men and women are present.

The technique uses three large drawings of a man, a woman and a couple. A set of cards shows various resources and possessions owned by people in the community, including:

Pump set	Currency
Furniture	Radio
Fruit trees	Vegetable plot
Bags of maize/wheat	Chickens
Trees	Huts
Donkeys	Cell/telephone
Bicycle	Jewelry
Horse and cart	Water pots
Land title	Cow
TV set	Harvesting machine

Participants are shown each of the above items and asked to assign ownership of each item to either man, woman or both. **The question asked is not who uses them but who owns them.** The list we arrive at should show the pattern of ownership and whether men or women differ in ownership. The results will show whether women have equal power in the society.

Forty-three percent of the agricultural workforce is women, and it can go up to 70 percent in certain regions (SOFA team and Doss, 2011). They control 2 percent of resources and contribute more than 50 percent of global agricultural produce. They invest income in food or nutrition, education of children and paying back debts, which together contribute to family welfare.

Likewise, another approach to learning about gender roles is asking about who does the following tasks. Who do they do it with?

- They prepare the fields.
- They plant crops.
- They transplant seedlings.
- They weed fields.
- They harvest and irrigate.
- They select seeds.
- They process grains.
- They prepare food.
- They wash dishes and clothes.
- They clean the houses.
- They collect and carry water.
- They gather firewood.
- They care for the elderly and the very young.
- They care for the animals.
- And many more…

© MEAS. Women do most of the farm and household work.

Useful Advice

Women play a significant role in agricultural development, but their contribution is often overlooked (Maunder, 1972). As an extension educator, you must understand women's special needs and constraints. The following may be helpful.

- In organizing a meeting, consider at what time of the day women would be able to attend it. They in all likelihood have regular times when they have to collect water, cook food, and collect fodder and firewood. Considering their daily work and planning accordingly can expand participation.
- Women may be shy and uncomfortable to speak in a public forum. Making groups of 10 to 12 persons can smooth the process.
- Provide encouragement from the beginning and take a non-judgmental position. Allow plenty of time for women to speak -- women are often not used to articulating their thoughts in public.
- Make an all-women group for group activities such as needs assessment and focus group discussions. Males tend to dominate the discussion in mixed groups.
- Avoid spatial separation: choose a location where all ethnic/tribe/religious groups can attend the meeting.

References

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SOFA team and C. Doss. (2011). *ESA working Paper No. 11-02*. Rome, Italy: Agricultural Development Economics Division, Food and Agriculture Organization of the United Nations. Accessed at: www.fao.org/docrep/013/am307e/am307e00.pdf

Tool 10: Develop a Work Plan

A work plan is a detailed outline of activities and processes and a timeline for extension workers to follow to attain the stipulated extension goals. The work plan presents various elements of a project or program in a simple and logical manner.

Importance of a work plan

- Delineates activities (what), the methods (how), the person or organizations responsible and the target groups (who), and the time (when) and place (where) that activities of the program/project will be conducted.
- Helps people keep track of their programs, activities and progress.
- Helps determine the resources necessary for the programs.
- Enables planning, allocating and transferring the program budget.
- Increases accountability and transparency in extension work.
- Motivates staff members and helps increase stakeholder participation.
- Allows new staff members to follow the work plan and take on the tasks with ease.

Steps in writing a work plan

There are two principal methods of writing a work plan. First, if the work plan is part of the project proposal, and the proposal has listed goals, objectives and methods in its main body, you may not need a separate detailed work plan. Second, if the work plan is an independent document and has to stand on its own, it needs to have following detail:

- Identify the purpose for the work plan or the purpose of the project/program and the length of the project/program.
- Write the introduction -- introduce the specific project and explain why it is needed.
- List the goal(s) and objectives. Goals depict the ultimate outcome of the work plan; objectives are steps to meet goals, and they should be specific and tangible.
- Follow the "SMART" principles while preparing the work plan -- objectives should be **S**pecific, **M**easurable, **A**ttainable, **R**ealistic and **T**ime-bound (SMART). Specify what you will do for whom. Expected outputs and outcomes should be measurable. The objectives should be attainable within the given time frame and resources. Objectives should be relevant and needs-based, and should serve the interests of the wider audience. Starting and end date/time of the project should be spelled out.
- List resources. Spell out the resources required to complete the project -- human, financial, physical, time, etc.

- Identify possible constraints to successful completion. You may have to readjust your plan to address the constraints.
- Spell out who is accountable for completing each task.
- Schedule responsibilities for at least each review period. The review period could be a month, a quarter or a year.

Additional Tips to Prepare a Work Plan

- Discuss the project with team members, stakeholders and beneficiaries. Seek their input to prepare the work plan.
- If the current project continues the work of a previous project or phase, discuss the past work plan and progress to examine whether the project went as expected. If not, find out why.
- Discuss the problems faced in the past project and solicit solutions to those problems and/or suggestions from the participants and/or stakeholders. Keep in mind that the proposed solution should be, "acceptable to farmers in the area, technically sound, tested by research and experience elsewhere, consistent with national policy and with the local activities of other agencies, feasible within the time and with the resources available to farmers and the extension service, and within the scope of the agent's ability and job description" (Oakley and Garforth, 1997).
- Discuss and list the upcoming activities, prioritize them, and assign them to your team members or staff members. Delegating the tasks saves time, helps serve more people, fosters accountability and leads to effective teamwork.

Sample work plan

Activities to be undertaken, time framework, location and persons responsible to accomplish the activities have to be spelled in the work plan (Chaturvedi, 1985). A work plan with time bar showing when a particular activity will start and finish is also commonly used in extension services.

Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Identifying the stakeholders												
Organizing farmers' groups												
Conducting training on vegetable production												
Method demonstration on nursery establishment												
Monitoring field activities												
Organizing farmers' field days												
Training on harvesting, grading, storage and marketing												
Reviewing and sharing the lessons learned												

References

Chaturvedi, S. (ed.) (1985). *Manual for field workers*. Kathmandu, Nepal: UNICEF and UNFPA.

Oakley, P., and C. Garforth. (1997). *Guide to extension training* (originally printed in 1985). Rome, Italy: Food and Agriculture Organization of the United Nations. Reprinted 1997. Accessed at: www.fao.org/docrep/t0060e/T0060E09.htm#7.%20The%20planning%20and%20evaluation%20of%20extension%20programmes

Tool 11: Develop a Grant Proposal

A grant proposal is a document explaining a problem or local needs, the reasons for those problems or needs, and how these can be addressed through a special project supported with funding typically from outside your extension organization. The grant proposal includes a detailed plan for addressing the local problem or need. It includes goals and objectives, methods to achieve the objectives, work plan and the resources required. Usually, the needs assessment or problem identification triggers the proposal design, and it is a critical component of a proposal.

Writing a successful grant proposal involves the following tasks:

Before writing a proposal, take these steps.

Several non-governmental agencies, foundations and corporations (e.g., United Nations, The World Bank, Red Cross, USAID, Bill and Melinda Gates Foundation) offer financial support to national or regional projects directed toward food security or community development. The agencies often target their funding to address predetermined problems, issues and/or geographic areas. So, you must understand which funding agency to approach for funding to address your problem or needs. The following points from Rinehart and Bouie-Scott (2003) are key for a persuasive grant proposal:

Eligibility: All grant-making organizations have goals, objectives and an intended audience. Therefore, read the criteria of the various funding agencies and compare them with your proposed project's goals, objectives and activities for compatibility.

Pre-application process: Sometimes funding agencies have a pre-application process or require a concept note before requesting the full proposal. In some cases, agency personnel might be willing to review your concept note via a meeting or oral presentation. This can be useful in making the proposal more responsive to what funders are looking for.

Decision makers: Identify the key individuals on the decision-making panel, their work and perspectives, to make sure the proposal is appealing to them.

Decision factors: A proposal applicant’s experiences, scholarship and stage of career are critical in proposal selection. Review previous year's awards to understand who have been considered favorably in earlier years.

Application process: Watch for the formal announcement of grant opportunities on the organizations’ websites and in newspapers and other media, and obtain the official application. Make sure to follow the application format and guidelines.

A sample format to write a project proposal is provided below.

Defining the problem

- Identify and analyze the problem that you have seen in your area.
- What general problem do you perceive in a village? For example: women have to struggle to feed themselves and their children.
- Analyze and identify the factors of the problems.

Problem	Cause
Women have to struggle to feed themselves and their children.	Lack of sustainable sources of income for the household.
Men regularly migrate to cities in search of work.	Lack of sustainable income opportunities in the area.

- Further analyze the problems -- find cause-and-effect relationships.
- Look for more than one cause – remember, there is often a chain of events that lead to a certain problem.
- Note down these events.
- Identify possible solution(s) to the problem.

Problem	Cause	Further Causes	Possible Solutions
Women have to struggle to feed themselves and their children.	Lack of sustainable sources of income for the household.	Women depend on unprofitable microenterprises to feed their families.	Profitable microenterprises such as chicken rearing can be introduced for women.
Men regularly migrate to cities in search of work.	Lack of sustainable income opportunities in the area.	Farming is not a sustainable occupation because of crop losses, poor marketing linkages, water scarcity, etc.	Make agricultural production profitable by using improved technology, crop diversification and improved access to market.

Sections of a grant proposal

Project description

Synopsis of project objectives, procedures and evaluation. Put the essence of the project in approximately 250 words. Remember: This may be the only part in the body of the proposal that reviewers read.

Introduction

- Introduce the need for a project and explain why it is a necessity.
- Mention the general theory upon which the project is based. If the project is unique (only one of its kind), it should be asserted here.
- If new or uncommon terms are used in the proposal, explain their meaning here.
- Mention the broad theoretical framework of the project.

Problem statement

- State why this problem needs to be addressed, giving the context of time and place.
- Provide references to research, statistics, previous projects or other documentation to support the need for the project.
- To convince, write very carefully why the project is important.

Objectives

- State the proposed goal and outcomes of the project in clear and measurable terms.
- Each objective is usually related to a need identified in the introduction section, activities in the methodology section and activities in the evaluation section.
- Keep it clear and brief.

Methodology

- Describe why the proposed method is more useful than others, and describe the chosen method in detail.
- Describe specific activities and action steps that will be used to achieve the objectives.

Monitoring and evaluation

- Provide details on how the organization and the funding source will determine whether the project has accomplished its objectives.
- List the type of evaluation information to be collected, how it will be analyzed, and a plan for its dissemination and use.
- Strengthen this section by providing evaluation criteria for each objective.
- Since the 1990s, evaluation has become integral to a project, so incorporate it.

Sustainability

- Discuss how the project will be sustained beyond the project time period and benefit the community over the long-term.

Budget

- State the proposed project costs in a table.
- Carefully document every item in detail. Divide them into stock and flow items. Stocks are one-time expenses; flow items are repeated and varying expenses.
- Request as much money as you need to complete the project adequately (asking for too little money can be as bad as asking for too much).

Once you have developed the grant proposal, ask your peers to review and provide feedback. Incorporate the comments and feedback and finalize the grant proposal.

Now you may want to prepare a cover page for your grant proposal. The cover page will need to have the proposal title and applicant information. The proposal may need to be submitted along with a short cover letter.

Title page

Include project title, name of applicant(s), name of agency submitted to, signature, typed name(s) and title(s) of authorized person(s) approving submission and date of approval.

A project title ought to be crisp and catchy!

Cover letter

On organization letterhead, the cover letter should briefly:

- State the need.
- Provide a brief overview of the proposed project.
- List the organization's credibility and qualifications, particularly if a similar project has been done before.
- Include a persuasion statement -- a statement describing your project in a way to convince the readers of its importance.

Reference

Rinehart, E., and B. Bouie-Scott. (2003). *Proposal writing: The basic steps in planning and writing a successful grant application.* Chicago, Illinois, USA" Department of Commerce and Economic Opportunity. Accessed at: www.illinois.gov/dceo/smallbizassistance/beginhere/documents/proposalwriting2003.pdf

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7. Program Implementation

Planning is a necessary but not sufficient condition for successful extension programs. A demand-driven, participatory and pluralistic extension program requires smooth and careful implementation. The first step in implementation is to determine what resources are needed to make the extension program successful. What kind of educational programs and activities would be appropriate for the message or content you plan to deliver to your audience?

© M. Suvedi. Development partners visit commercial horticulture plot in Cambodia.

An extension program plan consists of a set of activities designed to lead to desired changes among the target audience. To ensure proper implementation, an extension educator should also develop a calendar of work showing which activity will be implemented when, where and with which partners.

Remember, effective implementation involves:

- Establishing strong linkages with agriculture research organizations. Research stations are the generators of new knowledge and technology. Extension and research services must work together to address farmers' problems.
- Collaborating with local development partners.
- Promoting the program via interpersonal methods, ICTs and media as appropriate. Make sure women, smallholder farmers and members of tribal communities are informed.
- Ensuring that an official record of the program activity (e.g., program announcements, participant attendance or registration showing gender, ethnicity or tribe) is kept.
- Involving key people, agricultural research scientists, subject-matter specialists and extension advisors as much as possible.

- Organizing an extension program, event or activity at a convenient time and location.
- Collecting end-of-activity feedback from participants or beneficiaries.

Promoting Pluralism

All districts or communities have local agencies and organizations supporting agriculture, livestock, health and nutrition, education, roads and irrigation. Many communities may have the presence of some non-governmental organizations (NGOs) such as World Vision, CARE International, Plan International, etc. Some communities have farmer organizations, cooperatives or women's groups. Further, the private sector is active in input supply and marketing of products. All these organizations need to work together to achieve complex development goals. A good extension educator strives to promote teamwork and collaboration among these local agencies, development partners and the private sector during program implementation (Sulaiman and Davis, 2012). The stronger the collaboration, the more effective is the extension program.

Brown and Reed (2000) offer a comparative analysis of four popular interagency connecting mechanisms from networking to collaboration (as cited in MSU, 2007). Figure 10 illustrates the use of each strategy.

	Networking	**Coordinating**	**Cooperating**	**Collaborating**
Purpose	Exchanging information for mututal benefit	Altering activities for mututal benefit	Sharing resources for mututal benefit	Enhancing capacity of each agency for mutual benefit and common purpose
Agenda	Improve relationship	Avoid duplication	Divide up new resources, share resources	Develop integrated service system: - Joint decision making - Common forms - Common training across agencies
Example	Attend meeting, show and tell	Coordinating times for home visit, training events	Making staff and vehicles available to other agency	Pooling resources, designating a lead agency, joint responsibility

Figure 10. Stages of working together (adapted from Brown and Reed, 2000).

A network is a loose association of people or organizations. Members could join the network or leave it as they wish. Being part of the network shows commitment or willingness to work together to achieve a specific development goal.

Partnership is more organized and formal, aiming to accomplish a specific task or project. Membership is limited to a few organizations or groups, and they enter into the partnership with clear lines of responsibility among the partners.

Collaboration stands for long-term organizational commitment to pursuing a complex development initiative. Organizations usually have written agreements that bind the members together. Members share resources and responsibilities and follow joint decision-making practices on major project activities or initiatives.

Mechanisms to promote pluralism

- National policy on agricultural development should require collaboration among agricultural research, agricultural education and training, agricultural extension and private sector organizations. Joint planning of annual work and activities, including a coordinated approach to public resource allocation, will ensure collaboration.
- Biannual or quarterly meetings of agency representatives ensure good communication.
- Joint trainings or workshops for research, extension, education and private sector staff members help generate synergy for tackling common programs.
- A system of recognition and reward for promoting pluralism motivates people to seek teamwork and collaboration.
- Communication is the key. It can be done through networking, publications such as newsletters or media.

Extension field workers make use of a variety of methods and techniques in implementing extension programs and activities. Often, they organize method and result demonstrations, farmer field schools, field days and group meetings. In some countries, they set up a model farm or village to demonstrate the benefits of adopting improved farming and homemaking practices. The next sections in this chapter describe good practice tools for program implementation.

References

Michigan State University. (2007). *Community-based research and service-learning*. East Lansing, Michigan: Michigan State University. Accessed at: https://outreach.msu.edu/documents/presentations/JACKSON_HBCU_PRESENTATION_i.pdf

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Good Practice Tools for Program Implementation

Tool 12: Conduct Farm and Home Visits

A farm and home visit is exactly what it sounds like: the extension educator visiting the farmer's farm and/or home. It allows for two-way communication between the farmer and the extension educator. It provides a chance for them to interact on a one-to-one basis and enables them to exchange information.

Maunder (1972) explains the goal of farm and home visit. He asserts that the home visit serves as "a means of personal communication between the farm family and the extension worker in an environment where they can discuss matters of common interest in privacy and without the distractions and interruptions commonly experienced in group extension activities" (p. 151).

Farm and home visits are useful for:

- Individualized teaching of skills in a comfortable environment free from distractions.
- Building relationships and rapport with the farmers in the community.
- Stimulating in farmers interest and desire to adopt a new idea or practice.
- Helping people analyze their problems and find solutions.
- Acquiring firsthand knowledge of the farmer's farm and home conditions.

Purposes of farm and home visits

Murry (1974) provides a framework of five extension-related purposes for which farm and home visits are conducted:

Public relations visits

When the visit is to get acquainted and explain the basics of extension service.

Service visits

When the visit is meant to respond to some need expressed by a farm family -- e.g., a farmer complains about a pest infestation and asks for help.

© MEAS. Demonstrating benefits of adopting improved seed.

Teaching visits

When the educator, as part of an extension program, visits to teach a new practice or a skill -- e. g., the use of integrated pest management (IPM) techniques to minimize insect damage in vegetable crops.

Organizational visits
Visits geared toward program planning or implementing an extension activity -- e.g., farm visits for conducting needs assessment, assessing soil conditions or determining prevailing water use practices in a village.

Informational visits
When the visit is meant to gather some information -- e.g., surveys on water use, sanitation, migration, gender roles, etc. It can also be for learning how well an innovation has been accepted or which innovation is facing resistance.

The use of home and farm visits demands substantial amounts of time from the extension worker who has to reach out to numerous individual farmers/farm families. Therefore, there may be a limit on the number of farm visits he/she can make. A common problem in reaching poor farmers is that the extension worker might be biased toward visiting more conveniently located farms and their households.

References

Maunder, A.H. (1972). *Agricultural extension: A reference manual*. ED 075 628. Rome, Italy: Food and Agriculture Organization of the United Nations.

Murry, S. (1974). *Farm and home visits: A guide for extension and village workers.* Washington, D.C., USA: U.S. Agency for International Development. Accessed at: http://files.eric.ed.gov/fulltext/ED099548.pdf

Tool 13: Conduct Demonstrations

A demonstration is an effective method of teaching. This teaching method is especially appropriate for less-educated audiences. It is powerful because participants can observe side by side the benefits of adopting a new practice or technology as compared with traditional ones. Some demonstrations compare the benefits of adopting a single new practice; others may compare benefits of multiple new practices. These programs validate and/or demonstrate new technologies and practices in farmers' fields under farmers' conditions (Bell and Rickman, 2013). Generally, the simpler the demonstration, the greater the effect.

© M. Suvedi. Method demonstration on nursery bed preparation.

Demonstrations are of two types -- method and result demonstrations. Sometimes a demonstration can include elements of both result and method demonstrations. For example, farmers could learn how to test the soil and use soil test results to adjust fertilizer doses by doing it on test plots. They could then return later to see and compare the results in plots with and without fertilizer planted side by side.

Method demonstration

Method demonstration is about teaching farmers a skill or method or to show step by step how to carry out a practice or an activity (Oakley and Garforth, 1997). The method demonstration can demonstrate in a convincing manner how an improved practice can be adopted and used — for example, how to operate a sprayer or repair and maintain farm equipment.

© M. Suvedi. Home gardens are getting popular in Cambodia.

Advantages

- Reaches out and teaches simple farming skills to a large number of people.
- Follows "seeing is believing" and "learning by doing" principles of learning.

Limitations

- May not be appropriate for a very large group because only a few of them will get hands-on experience by being involved in the demonstration.
- Requires competent and skillful extension workers to perform the demonstration.

Result demonstration

Result demonstration is an educational tool that extension workers use to show benefits of adopting a new practice, proven technology or product to farmers and other end users. Usually, extension workers hold result demonstration at harvest time, when results can clearly be seen.

Advantages

- Farmers can directly see the benefits of new technology (seeing is believing) compared with traditional practice.
- It provides proof that a new technology fits the local conditions.
- It helps to establish farmer confidence in scientific farming methods and increase farmers' confidence in ideas originating from research stations.

© DAES Malawi. Farmers observe a groundnut demonstration in Malawi.

Limitations

- If the new practice or technology does not yield expected results, farmers may perceive the practice or technology very negatively.

Basic Principles for Demonstrations

Participation: Conduct demonstrations on local farms and let farmers participate in the demonstrations. If possible, avoid using an extension plot or research station for demonstration. The stronger the participation of beneficiaries, the greater will be their self-confidence and readiness to learn and change.

Simplicity: Simple, clear-cut demonstrations of a single practice or new idea will be far more effective than ambitious and overly complex demonstrations.

Learning: The demonstration should be conducive to learning in terms of space, time, equipment and the teaching method.

Preparation: A demonstration needs careful planning. A hastily given demonstration could have disastrous consequences.

Stages

Planning the demonstration

Take into account the objective of the demonstration, the suitability of the method and the usefulness of the new idea to be demonstrated, a convenient time/date for farmers to learn about the new idea and an appropriate venue/location for demonstration.

Preparing the demonstration

- Seek help of local people.
- Prepare a plan spelling out the activities, resources needed, who contributes what and the persons responsible to do the activities.
- Learn about the new idea to be demonstrated and remain ready to answer farmers' questions on it.
- Make sure all the logistics are ready (e.g., audiovisual aids).
- Select farmers who will take part in the demonstration and explain to them the outline of events.
- Ensure that the local farmers know the date, time and place of the demonstration.
- Visit the demonstration site in advance and make sure that everything needed for the demonstration is there.

Supervising the demonstration

The extension educator should facilitate and at the same time supervise the demonstration but allow the demonstrator farmers to play the primary role.

Conducting the demonstration

- Welcome the participants. Make them feel comfortable. Assure the participants that you and your team have finished the preparation for the demonstration, and you are excited to conduct it soon.
- Explain the purpose of the demonstration together with the objectives and the processes and/or stages. Provide participants with a poster, pamphlets, etc., that they can read to learn more about the demonstration.
- Conduct the demonstration either by yourself or by mobilizing a demonstrator farmer. Maintain a pace that farmers can follow. Answer questions that participants may have. Emphasize key points and explain in simple words. Present information in a logical sequence.
- Provide opportunity to farmers to practice the method being demonstrated. In result demonstrations, make sure that all participants see and understand what the demonstration is showing.
- Summarize the main points and encourage participants to ask questions.
- Conclude the demonstration by thanking all who helped organize it. Do not forget to thank participants for their keen participation.

- To follow up on the demonstration and evaluate its effectiveness, solicit feedback from some participants.
- Prepare a report and share it with stakeholders and peers.

References

Bell, M.A., and J.F. Rickman. (2013). *Field demonstrations: Fact sheet.* Davis, California, USA: University of California, Davis.

Oakley, P., and C. Garforth. (1997). *Guide to extension training* (originally printed in 1985). Rome, Italy: Food and Agriculture Organization of the United Nations. Reprinted 1997. Accessed at: www.fao.org/docrep/t0060e/t0060e07.htm

Tool 14: Organize Farmer Field Schools

Farmer field schools (FFS) are a traditional adult education approach — a method to assist farmers to learn in an informal setting within their own environment (FAO, 2008). FFSs operate on the principle of "learning by doing" -- the basic agricultural and management skills are taught to farmers with the expectation that they develop the expertise to use them. The biggest benefit that FFSs offer is the self-sufficiency that farmers attain by becoming teachers themselves. This also speeds dissemination among and adoption of technologies by farmers.

© DAES Malawi. Farmer field school participants in Malawi.

The Approach of FFS

The FFS approach includes the concept of the ecosystem -- all the living and nonliving things found in the environment of a local area. Knowing the ecosystem helps in identifying the functions of the organisms in the ecosystem and how they interact with one another. With this knowledge, local resources can be utilized for better agricultural production that, in the long term, will be sustainable. The essence of the FFS approach is discovery-based learning in which a learner understands the method by asking questions. Questions such as "What is this?" and "What is that?" help an extension educator to guide farmers to critically analyze what they see in the field's ecosystem. That, in turn, helps them make better decisions in farm practices and technology adoption. For success, FFSs have to be held at regular intervals.

The number of participants in FFSs should be limited to 20 to 25 farmers who share a common interest. The field acts as the teacher; the role of the extension worker is that of facilitator. A

technically competent person such as an agricultural university graduate or a farmer field school graduate could also assume the role of facilitator. He/she provides most of the training materials and other inputs such as seeds, fertilizers, plants, pesticides, etc. The site is provided by the community where the school is held.

Steps in conducting farmer field schools

Step 1. Identify the topic, site and participants

- Identify the problems.
- Identify the new practices and technology to be taught and/or usual practices applied by farmers.
- Identify field school participants.
- Identify the field school site.

Step 2. Train the facilitators

Typical subjects covered in the training:

- Crop/animal production.
- Protection technologies.
- Message delivery mechanisms using formal education methods.
- Participatory training approaches.
- Group dynamics.
- Communication skills, problem solving, leadership and discussion methods.
- Special topics related to the subjects under study.

Step 3. Establish and run the FFS

- Jointly, farmers and facilitator identify the enterprise for which the FFS is being established.
- Follow the seasonal cycle of the practice being investigated -- e.g., land preparation, livestock feeds.
- Implement the enterprise. If the focus is crop production, plant the crop as agreed by the group following options from both indigenous knowledge and formal science.
- Conduct agroecosystem analysis and morphology, and collect data at every stage of the enterprise.
- Present observations by farmers.
- Discuss using group dynamics approaches. Organize field days at various stages of the enterprise as agreed by the group.

© DAES Malawi. Farmers discuss how to adopt new technology.

Step 4. Evaluate the enterprise

- Analyze the collected data.
- Interpret the data.
- Conduct an economic analysis.
- Present results to the group.

Step 5. Graduation

- Marks the end of the season-long FFS.
- Should be organized jointly by farmers and facilitators.
- Farmers should be awarded certificates in the presence of a special guest to make the event memorable.

Step 6. Farmers run their own FFSs

- The FFS graduates may now have the knowledge and confidence to run their own FFSs. This is the beginning of decentralization and self-sufficiency.

Step 7. Follow-up by facilitators

- Extension officers should visit the farmer-run FFSs to check on the progress and challenges faced. This ensures continuity.

The farmer field school has acquired a positive reputation in the past two decades. The approach was first used as part of an FAO project in Southeast Asia that was attempting to support small-scale rice farmers to investigate and learn for themselves on their paddy fields. It was triggered by farmers facing a devastating insecticide-induced outbreak of brown planthoppers in central Java in 1986, which destroyed approximately 20,000 hectares of rice. The government of Indonesia responded by launching an emergency training project to train 120,000 farmers in integrated pest management (IPM). In 1989, the training was established under the FAO-assisted National IPM Program. The term “farmer field school” comes from the Indonesian words “sekolah lampangan,” meaning simply “field school” where farmers are teaching themselves. Why farmer field schools?

They sharpen the farmers’ ability to make critical and informed decisions.

They empower farmers with knowledge and skills.

They build farmers’ skills in new ways of thinking and problem solving.

They help farmers learn how to organize themselves and their communities.

They are inclusive -- even illiterate farmers can prepare simple diagrams to illustrate the points they want to make.

Success Story

Farmer field schools (FFS) gained momentum and were introduced in various parts of Africa in 1990s (Braun and Duveskog (2011). For instance, in Mozambique, funding from the International Fund for Agricultural Development supported a program with the objective of improving food security and thereby increasing rural income. The program adopted the FFS methodology. As part of the methodology, a communal plot is used to teach farmers proven agricultural practices that they can apply on their farms to increase their yield and production and protect their crops. Once the farmers master the techniques, they can also teach other farmers, thus multiplying the positive effects of the methodology. A total of 1,200 FFSs have been established on the island, which benefited a total of 22,124 households, among whom 61 percent were women. In addition, another 12,954 households participated in the program's activities informally (without joining a farmers' group) or learned through interaction with trained farmers (IFAD, 2012).

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Tool 15: Organize Field Days

A farmers' field day is usually a daylong event where farmers showcase new agricultural technologies, practices and products they have adopted, and they share information and their experiences with other participant farmers. Farmers' field days' main goal is fostering discussions among participants so that they learn from one another. Farmers get an opportunity for face-to-face interactions, which help them understand the agricultural technology and practices. Studies show that farmers learn more from fellow farmers than they do from others (Van den Ban and Hawkins, 2002). A field day is particularly effective in educating people who cannot read or write. Usually, field days are informal and loosely structured. Commonly, field days are organized on demonstrator farmers' farms; in rare cases, they take place at experimental stations. As an extension educator, you are responsible for planning, organizing and evaluating the field day. You need to support the demonstrator farmer and train him/her for the demonstration.

© M. Suvedi. Field day organized by Cambodia/HARVEST project.

How to organize field days

Field days are important methods to communicate farmers and other agricultural stakeholders of the improved technology and practices. Hagiwara (2011) and Oakley and Garforth (1997) suggest following tips to organize field days.

Plan:

- Focus on five basics -- program, price, place, people and promotion -- when you plan the field day.
- Make sure that the technology and/or practices that farmers showcase match the visitor farmers' needs and interests (program).
- Have an adequate budget (price) to organize the program, and plan your field day within the given budget.
- Select appropriate participants and guests (people).
- Ensure that the layout of field-day activities allows easy access to and movement in the field (place). Put signposts to help guide participants to the demonstrations.
- If possible, organize the field day when results of comparative trials are available. This allows participants to observe beforehand the results of the two trails—traditional variety or practice and new variety or practice.
- Make sure that demonstrator farmers are prepared and are confident to showcase something new.
- It takes about 3 to 5 weeks to organize and complete a field day, so start early.

First week

- Decide the field day date at least 3 to 5 weeks in advance. Identify invitees/farmers.
- Inviting a guest who local people respect and would like to listen to can attract wider participation.
- Limit the number of invitee farmers to the capacity of the field so that everyone can easily see the demonstration.
- Publicize the field day.

Second week

- Collect the required materials.
- Allocate duties among staff members and volunteers.
- Rehearse for the field day.
- Make sure that you print or buy the educational materials — leaflets, pamphlets, audiovisuals, etc. -- that you will distribute or use on the field day.

Third week

- Conduct the field day.
- A typical field day program includes the following elements:

- Participants (farmers) arrive and register.
- Welcome the participants and the guests.
- Explain clearly the purpose and importance of the field day.
- Distribute educational materials and make sure they are readily available to the participants.
- Thank all the people — participants, guests, staff members, sponsors (if any) -- who helped make the field day a success.
- Inform participants of the follow-up plan or other similar programs and/or field day events, if any, in the near future. Request audiences to contact you or other extension staff members or demonstrator farmers if they have any questions or plans they want to share in the future.
- Offer refreshments (if it is in the plan) and wrap up the field day.

Fourth week:

- Conduct a follow-up evaluation of the field day.
- Prepare a report, and share results with staff members and stakeholders.

Tips for Organizing a Field Day

- Effectively publicize the field day.
- Use tools that suit local contexts -- postcards, newsletters, press releases, e-news, social media, websites, pamphlets, social mobilizers, women's groups, etc.
- Give a catchy title and subtitle to the program.
- Include the date, time, place, venue, directions or a map to the program site, information about registration fee (if applicable), your contact details, etc., in the field day promotional materials.
- Let demonstrator farmers demonstrate the technology and/or practices.
- Let demonstrator farmers be in charge of their demonstration.
- Facilitate the field day program and make sure that it is interesting and well-presented, and that the field day location is safe and comfortable for participants.
- Wrap up the field day by reviewing the day's proceedings and the main items seen and discussed, and inform visitors of upcoming events.

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Tool 16: Establish a Model Village

A model village is one in which people live improved lives -- psychologically, socially, physically, culturally and economically – as a result of integrated interventions. It has been a popular tool in the development sector in the past decade or so to set examples for other villages to follow. Agricultural extension service in Malawi has adopted this strategy to disseminate improved technology and practices to smallholder farmers (DAES, 2007; Livuza, 2015).

Economic self-sufficiency and social justice are essential features of a modern village. It all begins with a plan. According to Drishtee (2012), "A Model Village is a sustainable rural community that is able to generate and maintain the resources necessary to improve its level of well-being and happiness without depleting economic, social and environmental values." A model village plan that envisions the sustainability of a village community with three pillars -- livelihood, infrastructure and services -- is the prerequisite to establish a model village (Drishtee, 2012).

© Ramjee Ghimire. Farming system followed in a Nepalese village.

An equally important component is the commitment to work, which villagers have to pledge among themselves and with various organizations and institutions. These institutions possess well-defined development structures and are receptive to harmonized, integrated development interventions for improving rural livelihoods.

Steps in identification of a model village

Livuza (2015) and DAES (2007) recommend several steps in establishing a model village which are summarized below:

Step 1: Making stakeholders, leaders and community members aware of the program (sensitization)

- Stakeholders within the vicinity of the identified village are informed about the model village formation plan and mobilize resources from multiple stakeholders. Other development partners should be queried about their mandates and any projects that they might want to carry out within the model village.
- These stakeholders are commonly non-governmental organizations (NGOs), religious organizations, government ministries and departments, private organizations and farmers' organizations.
- The last partner to be involved is the community. Members have to be informed of and buy into the intended plan, what will change and what they can contribute, such as labor. This sensitization of the community needs to be extended to all genders and other categories in a community, such as youth, the elderly and the physically disadvantaged.
- For example, constructing a warehouse to preserve vegetables in a village requires money; cement, stone and bricks; engineering expertise; land where the warehouse will be constructed; and labor. With the consent and cooperation of multiple stakeholders, all these inputs can be mobilized to benefit all.

The local leaders of the identified village will be key players. They may be traditional leaders (tribal or caste leaders), political leaders (elected representatives) and farmers' organization leaders.

Sensitize leaders of all local-level development committees so that they understand and feel a sense of ownership of the model village as a development approach.

Step 2: Identifying target villages

- Local leaders and extension workers in an area should arrive at a consensus on which village to start with.
- A target village should possess some of the following characteristics:
- Receptiveness to development efforts.
- Relative poverty (food-insecure, low-income).
- Poor health conditions, such as high malnutrition or incidence of HIV/AIDS.
- Poor market linkage.
- Low or no availability of year-round water.
- Inadequate utilization of the various types of foods.
- Low literacy levels.
- Few and poor sanitary facilities.
- Poor infrastructure.
- Few natural resources and poor management.

- Few or no farmer-based organizations.
- Inadequate crop diversification.
- Inadequate food diversification.
- Few community members implementing technologies for soil and water conservation and fertility improvement.
- Target village identification should be followed with secondary data collection.

Step 3: Understanding the situation through relevant data

Data is widely available from public records and the Internet and can be collected from local leaders and other development partners working in the area. Collecting data through surveys is possible but time-consuming.

The types of data to be collected include:

- Livestock population of various species, number of households by gender of household heads, types of crops (field and horticultural crops).
- Physical infrastructure available, such as roads, schools, health units, markets, water points and forests.
- Availability of a village development committee, subcommittees and a village action plan.
- Availability of banking and credit facilities, existence of farmer organizations.
- Common crop and livestock pests and diseases; control measures used, if any.
- Common human diseases.
- Common income-generating activities.
- Number of clans.

As a village development plan is being prepared, an important component is a local resource map. Created by the locals, it will show the natural and physical resources existing and available at the village level. This should help the community to realize its assets and then work forward from there.

Conducting a needs assessment with stakeholders and partners (see Chapter 5) can provide baseline data. Using participatory rural appraisal (PRA) tools will ensure that members of the village community own the process and the information collected.

Step 4: Institution building

- Assist the village to self-discover the need for other development subcommittees -- e.g., livestock and watershed committees -- which will be facilitating the implementation of various interventions on behalf of the village.

- Community members should choose the types of subcommittees they want, which will serve the kind of developmental interventions they desire.
- All subcommittees and other institutions should be sensitized on their roles and responsibilities in relation to other institutions in the village.

Step 5: Implementation of action plans

- Facilitate timely implementation of village action plans in conjunction with subcommittees.
- Coordinate and collaborate with stakeholders and partners in the implementation of action plans.
- Implement plans step by step with time in between steps so there is opportunity for revision.
- Community participation is a must at all stages.
- Make sure that action plans have clear monitoring indicators and evaluation tools.

Step 6: Capacity building

- Provide regular training sessions to fill knowledge and practice gaps among members of the village development institutions to develop their capacity to lead the community well, remain focused on their development goals and evolve into much stronger institutions.
- The overall aim should be to make the village community self-sufficient. Self-help groups or cooperatives can be entrusted with that responsibility.

Step 7: Participatory monitoring and evaluation (PME)

- Monitoring is crucial to correct and learn from an experience. External stakeholders and partners who come in to conduct evaluation can be valuable in determining the impact of interventions and whether new practices are sustainable.
- Common methods for monitoring progress are joint supervisory field visits, review meetings, progress reports, surveys and participatory appraisal. These tools are described in Chapter 8.

In summary, a model village has been considered a good way to set an example for other villages to follow and thus spread good practices in a region. Funding agencies have been encouraging in their support. Infrastructure comes from the funding agency — e.g., government or foreign funders -- or the village itself. Livelihood improvement is a key factor because that is where local people gain from the effort, both financially and in terms of dignified existence. External workers provide the village with knowledge of new technologies and innovations and how to adopt them. But what is required most is a good and motivated leader from the community who can work toward the goal.

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Tool 17: Conduct Meetings Effectively

Meetings provide space for face-to-face interaction between people. Meetings are common places for sharing problems, exploring solutions, planning programs, and acquiring information and knowledge. Extension workers and other development workers spend much time conducting and/or attending meetings, yet outcomes of the meetings are limited. Meetings can be productive and helpful in attaining program goals if they are properly planned and conducted (Books and Gamon, 2000). Meetings foster feelings of cohesiveness and safety. Extension workers should be able to conduct meetings effectively to ensure wide stakeholder participation in extension programs and to achieve extension goals.

Phases of meeting management

Planning:

- Decide on the goals and desired outcomes of the meeting. Is it an information meeting -- e.g., for communicating something new and important; or a decision-making meeting -- e.g., for finalizing a project or plan?

  Haynes (1988) suggests preparing the agenda, spelling out the topics of discussion listed in proper sequence, meeting adjournment time and break time. Haynes offers additional tips to planning an effective meeting as follows:

  - Identify the participants. The meeting's purpose guides who should participate. Usually, participants should have some knowledge of the topics to be discussed, have time to participate, and be willing to express facts, feelings and opinions.
  - Choose an appropriate meeting time. Take into account your availability, participants' availability, the facility's availability and time required to prepare for the meeting.
  - Choose a meeting venue in a centrally located place. The meeting room should be comfortable for participants and large enough to accommodate the participants and the use of aids such as audiovisuals. It should have adequate lighting and ventilation, be free from noise and other distractions, and be appropriately furnished.

- Arrange for audiovisuals, flipchart, white board, blackboard, handouts, notebooks, pencils, sign-in sheet, etc.
- Decide whether you will need to assign someone to be time keeper or note taker.

- Decide a meeting evaluation method -- by yourself, an outside evaluator and/or the participants.

Setting up the meeting:

- Invite participants. Provide them the agenda. Usually, participants should be notified at least one week in advance.
- Arrive early.
- Set up tables and chairs so that everybody can hear and see every other person.
- Make sure that audiovisuals, lights, thermostat and windows work.
- Allocate some pre- and post-meeting time for participants to socialize and interact.
- If you expect to conduct several meetings until the project winds up, conduct them in a regular cycle -- on a fixed date and time (e.g., 7 p.m. on the first Monday of the month).

Running the meeting:

- The meeting leader or chair should take into account three components of meetings: content, interaction and structure. Content refers to the information, knowledge, experience, etc., that participants will learn or share; interaction is how participants are involved in discussion and take part in activities with one another in the meeting; and the structure is the way participants and information are organized to attain the meeting goals.

The following items explain how meetings are conducted:

- Follow the time line -- start and end on time.
- Ask people to sign in. Seek each participant's name, organization, address and phone number when he/she arrives.
- Introduce yourself and your roles, and ask everyone to introduce him/herself.
- When there's a special speaker or guest, introduce him/her, too.
- Use an icebreaker exercise to help participants get acquainted and interacting. An icebreaker is a short exercise held at the beginning to help people get to know one another or dig out some important piece of information in a fun or interesting way.
- Remind participants of the meeting agenda and ask if there is anything to change or add to the agenda.
- Explain the meeting ground rules.
- Ask participants to turn off cell phones or other devices that may distract or disturb the meeting. You may establish a policy to disallow these devices during the meeting.

- Keep the discussion on track, and do not let participants go off the agenda or speak too long.
- Keep an eye on the time. If needed, assign someone the job of time keeper.
- If the meeting reaches its intended ending time but additional time is needed for discussion, seek out agreement from all members to continue.
- Wrap up each agenda item by summarizing the conclusions, if any, with the participants.
- Encourage participation by all members.
- Designate a note taker to record the minutes.
- At the end, summarize the points discussed/raised in the meeting.
- Go over any tasks that the participants decided to accomplish -- what each task is, who will do it, how it will be done, when it will be done -- so that everyone is clear on his/her role.
- Thank the participants, speaker, guests and staff members who made the meeting happen.

Following up:

- Prepare the minutes and distribute them to the participants and other concerned parties.
- Seek feedback from the participants about how the meeting went and what can be done to do better next time.
- Remember to follow up on the decisions made at the meeting. You may have to call or write to the parties responsible for doing the tasks.

Handling difficult members

Interventions:

- Let the group decide how to deal with the disrupters.
- Follow the agenda and ground rules if some participant repeatedly goes off the agenda.
- Use humor to calm the participants in case of tension in the room.
- Accept, deal with or defer issues being discussed -- do not remain undecided.
- Use appropriate body language.
- Take a break if you feel that you need to talk to the disruptive person separately to know and/or address his/her concerns.

Preventions:

- Listen carefully to what participants say, try to understand what they mean, and address their concerns or issues in a timely fashion.
- Stay in your role.
- Don't be defensive.

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Tool 18: Manage Conflict

Conflict on a large scale has afflicted millions around the world. Various explanations have been offered describing the causes of conflict. A widely accepted thesis is that of "horizontal inequalities" (Stewart, 2008). Inequality exists between culturally defined groups having several dimensions, such as economic, political and social. These groups may be defined on the basis of geographical affiliation, gender, religion, class, caste, language or other characteristics. Unlike vertical inequality, which operates between individuals, horizontal inequality operates between groups. According to this view, imbalanced development that involves sharp horizontal inequalities (group differences) is an important cause of conflict, which is found commonly in developing countries (Malik, 2009).

Another common cause is the fight over natural resources. Some natural resources are being depleted, and control over them is crucial for the livelihoods of the community members. Scholars in the developing world have found competition over natural resources escalating conflicts.

In the context of a village, both group inequality and disagreement over natural resources are bound to exist. Agriculture depends on access to land and other natural resources, so it's a natural focus for tensions among people. When you enter a village to start a project or to address a meeting, it is imperative to identify where conflict lies and what led to the conflict.

In groups, conflict develops when participants seem to be confident in what they know and say and try to push/pass their agendas. According to Haynes (1988), conflict arises when communication is lacking, participants hold different perceptions and different values related to issues being discussed, and participants' preferred outcomes are different. As a change agent, you have to be able to address conflict so that it does not hinder the extension program plan and its implementation.

Steps to resolve conflicts

Step 1: Acknowledge that conflict exists

Address the conflict immediately. Otherwise, it becomes an obstacle to the community's success.

Step 2: Identify the real issue

This step often requires systematic and sustained work. Conflicts arise both from core issues and from emotional issues. In every conflict, there is interplay between these two issues. The core conflict relates to the functions of the community. The emotional issues, on the other hand, relate to threats to self-esteem or jealousy. They can intensify the conflict. The core issues must be resolved first to resolve the conflict.

Step 3: Use one or more ways to resolve conflict

Dunn (2000) has provided multiple approaches to address conflict:

Listen to the other: When differences in opinion occur, the first step is to listen. Step back for a moment and listen objectively to the other person and to yourself. Tune into what the other person is feeling.

Let it pass: It takes two hands to clap, so if you can avoid confrontation, then you can avoid the conflict. Do this either by conceding to the other person's views or simply not commenting. Especially if the other person is angry, choosing another time to express your opinion might be wise.

Reflect: Think on the point the other person made to make sure you have understood him/her correctly. (Some term this active or reflective thinking.) Once you are sure, say it aloud to the other person to make sure you understand. Remember: 85 percent of conflict is caused by miscommunication, so clarifying what has been said will resolve many issues.

Venting emotions: Let both parties express themselves enough to bring out the reason behind the disagreement. Approach the one who seems upset, ask, "Is something bothering you?" to show empathy and give that person space to express his/her feelings. Simply acknowledging the person's feelings may help him/her to calm down, after which the dialogue can continue.

Compromise: Compromise is an essential element in conflict management. Compromise is not easy when both parties are fuming over their disagreement; in fact, in moments of anger we tend to say unfavorable things. Facilitate members to find some common points for agreement.

Directly confront feelings: Bottling up feelings can lead to disaster. One person cannot know what is going on within another unless he/she expresses his/her feelings. The aim is not to confront or attack but rather say, "This is how I feel" about behaviors and incidents. Generalizations can implicate more people than are actually at fault.

Argue productively: Bring out the issue and thrash it out. Make sure the discussion focuses on the issue and does not become a personal attack. If two individuals are particularly unhappy, perhaps they could sort out the issue separately without taking the time of the whole group.

Figure 11 offers more insights into dealing with conflicts.

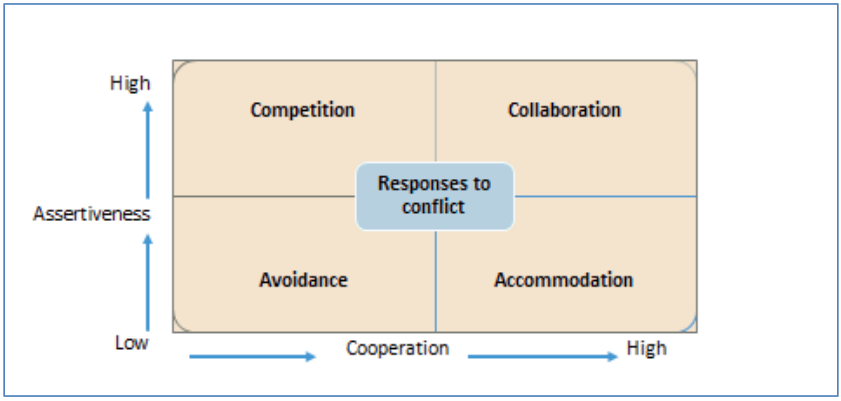

Figure 11. Conflict resolution strategies (adopted from Haynes, 1988).

Extension workers have to observe members' behaviors and use appropriate approaches for dealing with conflict.

Advice to extension workers: Getting personal in arguments can make things worse. So, avoid speaking when angry to avoid long-term harm to a relationship.

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Tool 19: Manage Time

Time management is a competency in planning and spending time to maximize productivity. People who manage their time well are successful in their careers; they usually focus on results rather than on activities. Good time management helps improve professional status, gives personal satisfaction, reduces work stress, enhances opportunities for career advancement and helps achieve career goals. Extension workers work with many stakeholders and conduct various extension activities. Efficient time management helps them be highly productive in providing extension services.

How to manage time

There are five stages in time management: plan, assess, organize, prioritize and schedule (University of Oregon, 2015). University of Oregon (2015) and Vellasco (2011) offer the following suggestions for effective time management:

Plan

- Set realistic, believable and achievable goals for your extension work.
- This helps you manage your time and guides you toward your destination by stimulating you to work on set activities.
- It also helps manage your priorities and resources.

Assess

- Continually examine how you are spending your time.
- Prioritize your tasks.
- Keep a to-do list handy.
- Break big or complex tasks into smaller, specific, doable ones.
- Keep a log of how you are spending your time.
- Review personal goals and determine whether the revisited activities fit with your goals.

Review the log every three days and seek answers to the following questions:

- Were there any surprises?
- Would you judge this to be a typical week?
- What patterns could you identify in your time wasters? Interruptions?
- What part of the week would you consider most productive? Least productive?
- What time of the day do you feel was most productive? Least productive?
- What activities would you like to eliminate totally? What would be the cost of doing so? What is the cost of not eliminating them?
- Which activities during the week do you deem most rewarding? Would you like to spend more time doing them in the future? What is your plan for doing so?

Schedule

- Schedule your activities.
- Reserve time for breaks and other important activities.
- Effectively schedule your tasks. Schedule important work during the part of the week and the part of the day that you determined are your times of peak productivity.

Additional tips on time management

- Minimize distractions and concentrate on your tasks.
- Learn to improve your concentration.
- Give each task a short time each day to avoid procrastination.
- Do not take on more tasks than you can manage.
- Say no to people or requests when needed.
- Delegate tasks to fellow staff members or others.
- Keep time for teamwork, meetings and consultations.
- Try to slow down, and learn to manage your time better.
- Take breaks when needed. Short and on-time breaks enhance creativity.
- Maintain some flexibility in your work schedule.

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Tool 20: Manage Groups and Teamwork

Teamwork refers to team members working collectively on an undertaking that is designed to deliver a product or service to the customers. Teamwork improves quality, productivity and service through shared responsibility. It allows extension workers to focus on customers' needs and interests. It reduces operating costs and the need for a long hierarchical staff structure, leading to efficiency. Finally, it attracts and retains the best people within organizations.

© DAES Malawi. Farmers' group working with potato crop.

Extension work involves working with various clientele groups and stakeholders -- i.e., farmers, researchers, agribusiness operators, youth organizations, educational organizations, schools and colleges, and industry representatives. Teamwork can be used to effectively deliver services.

Teamwork does not happen instantly. It takes time and planning to develop teamwork. Facilitators such as extension workers have to be cognizant of the status of the teams and their members and be able to use various strategies to nurture and strengthen the teamwork within their organizations. Commitment to a common goal, mutual trust, communication with team members, members' involvement and process orientation are the key factors in nurturing teamwork (Wellins et al., 1991).

Characteristics of an Effective Team

Clear purpose: The vision, mission, and goal or task of the team has been defined. Members know team goals and their roles, and they have feeling of ownership.

Open communication: Team members feel free to express their feelings on the task as well as on the group's operation.

Shared leadership: Though the team has a formal leader(s), leadership function shifts from time to time depending on the needs and the skills of the team members.

Participation: Everyone is encouraged to participate in team work – planning, implementing, evaluating and communicating with stakeholders.

Informality: The working environment is informal and comfortable.

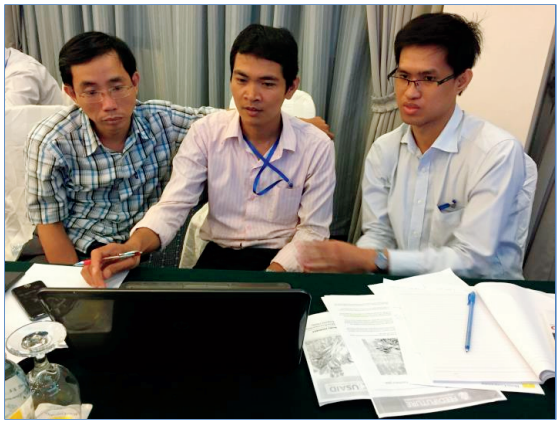
Consensus decisions: For important decisions, seek consensus, if possible, or substantial agreement through open discussion of ideas. Common methods for monitoring progress are joint supervisory field visits, review meetings, progress reports, surveys and participatory appraisal. (These were discussed in Chapter 8.)

How to foster teamwork

Parker (2006) offers guidelines to foster teamwork:

- Start with team goals and specific, measurable, attainable, realistic and time-bound (SMART) objectives.
- Prepare an inventory of your team talent — members' past work experiences, their operational skills, specialized knowledge and education.
- Empower the team to plan, budget and implement their plan. Empowered teams can take on complex tasks.
- Appreciate style differences. Teams may have people with different leadership styles -- contributor, collaborator, communicator and challenger. Give them the space to use their expertise or skills whenever you deem appropriate.
- Establish ground rules about how team will function and what roles members will have.
- Prepare a project plan as well as a work plan.
- Regularly conduct project reviews and check whether tasks are done as planned.

- Hold team meetings regularly and effectively.
- Build external networks. Teamwork is not only an internal or team phenomenon -- external factors also affect teamwork.
- A team needs information, resources, support and budget. Ensure that your team has all these elements.
- Minimize conflict by creating a climate of trust within the team. Freely share your knowledge and expertise with team members. Stand with the team when the team is in difficulty.



© M. Suvedi. Professionals working as team in Cambodia.

- Communicate, communicate, communicate — communication between and among team members and information to and from the team are key.
- Get everyone committed to team goals.
- Make decisions by factoring in members' opinions.
- Assess team performance. Monitor individual and team progress; ask team members to evaluate their own contributions and the team's overall performance.
- Reward team results. Reward team members for their contributions to the teamwork.
- Celebrate the team's accomplishments.

According to Melbourne Law School (2015), a team may fail when:

- Leadership is weak or lacking.
- Team goals and objectives are unclear.
- Members' roles are not defined.
- Members lack trust and collaboration.
- Members' voices are ignored.
- A few members dominate the team -- e.g., in decision making.
- Work plan and deadline are not followed.

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Tool 21: Understand Group Dynamics and/or Facilitate Groups

A group is a social entity comprising two or more individuals who work together for common purpose. Group method is an effective extension method based on the principle that individuals who come together and work as a group can achieve more than their individual achievements combined (synergism). Further, working in a group fosters participation and democratization. It strengthens the capacities of communities to identify opportunities, set priorities and nurtures assets such as social capital.

Extension workers play crucial roles in forming and developing well-functioning farmers' groups. Described below are the types and characteristics of groups, stages of group development and skills required for facilitating the groups, which all extension workers should be familiar with.

Type of Groups

Primary groups: People who are very close to one another, who need each other for various reasons and who frequently meet. There is interpersonal relationship among the members of such primary groups. Members value the society and its norms, which influence their attitudes, values and orientations.

Secondary groups: Secondary groups usually have large numbers of members who seldom meet and communicate with one another. There is impersonal relationship among the group members. For example, trade unions, national cooperative societies, etc.

Planned groups: Planned groups are formed for some specific purpose, either by community members themselves or by some project or organization. For example, an off-season vegetable production project may have planned to work with women farmers' groups. Project people or local mobilizers visit local communities, organize women farmers into groups and work with them while they conduct their project activities.

Emergent groups: These groups are formed without any prior preparation. People come together and start developing into groups. Some incident or development -- for example, natural disaster or educational projects conducting a training campaign -- may trigger the formation of these groups.

Characteristics of a group

There are a few characteristics that connote a group:

Group interaction: This refers to the way in which people engage with and influence one another. Task interaction is about the group's work; relationship interaction is the socio-emotional interactions between and among members.

Group interdependence: This is how group members depend on and influence one another.

Group structure: Group size, norms, roles and stable patterns of relationship among the members of the group explain the group structure (Forsyth, 2006).

Group size: The number of members in a group affects how they participate in group activities. For example, in small groups, members will have relatively more chance to be involved and communicate than members in larger groups.

Group norms: Norms guide how group members should behave in groups. Smith (2008) prescribed "norm" to be not what is likely to happen but rather what ought to occur. Group norms keeps a group together and help groups function well.

Roles: The expectations and attributes related to a social position form roles (Smith, 2008). Defining roles is important so that every member knows what and how he/she can contribute to the group and/or the group's goals.

Group goals: Group goals envision the future and tell what the group and its members want to achieve. Group goals keep groups and group members united and active.

Group cohesion: Groups survive because there is cohesion and trust among members. Members believe in one another and are committed to work together.

Stages of group development

Groups mainly go through five stages of development: forming, storming, norming and performing (Tuckman and Jensen, 1977) (Figure 12); adjourning is the fifth stage in the group life cycle. Understanding these stages can help determine what is happening within a group and how to manage the group.

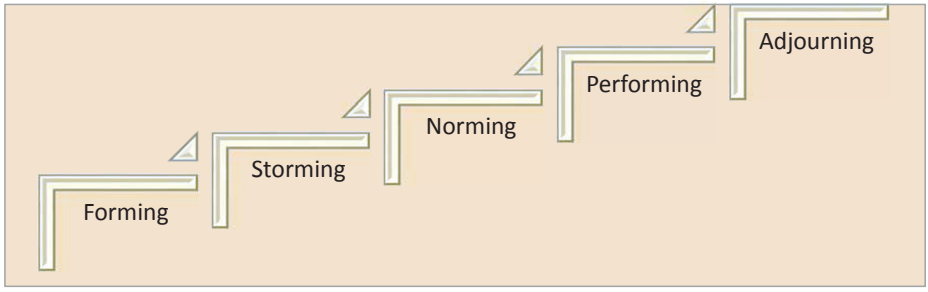

Figure 12. Stages of group development.

Forming: Members start to contact one another, express interest in teaming up with one another to achieve individual (e.g., leadership) or collective goals (e.g., marketing agricultural products, organizing farmer training). Members want the group to accept them. Group leaders are expected to guide the members. There is no agreement on the group's goals and objectives at this stage, and members are also not clear about their roles in the group. Personal relations are characterized by dependence.

Storming: Once a group is formed, members express desires for certain roles and positions; there could be arguments and conflicts among members over leadership, power and authority. Members reveal their personal agendas and vie for positions in the group. Competition and conflict may color personal relationships, too. This stage culminates in mutually agreed upon role definitions. To progress to the next stage, group members must move from a testing and proving mentality to a problem-solving mentality.

Norming: Group members form norms that govern the group, and cohesion and cooperation develop among members. Members are willing to change their preconceived ideas and resolve interpersonal conflicts. They are also open to one another and share feelings and ideas, solicit and give feedback to one another, and explore actions related to the tasks at hand. They participate in decision making and are committed to work to achieve group goals and objectives. Members respect their leaders and vice versa.

Performing: Members work together to do tasks and achieve agreed upon goals. Members work together to enhance group productivity. Members exhibit true interdependence -- they are unified, loyal and supportive; they focus their efforts on problem solving and task completion. There is a shared vision among members. Members take on the roles the group has assigned to them. Issues or conflicts that come up while the group moves on are resolved through dialogue. Groups may function on their own at this stage and beyond.

Adjourning: Once goals are accomplished, a group may be dissolved, a group may no longer function, and/or members dissociate themselves from the group. However, some groups may continue to function even after they accomplish their predetermined goals. Some groups may even advance to yet another stage, becoming and functioning as independent institutions -- for example, cooperatives, non-governmental organizations, etc.

Skills required for facilitating group formation

The following are adapted from Eastern Washington University (2015):

Forming: Extension workers should promote inclusiveness, encourage people to be connected to one another, find diverse members' talents, and facilitate members finding common purposes and targets for change.

Storming: Extension workers should be able to accept differing ideas, discuss those ideas in the groups, amicably handle the conflict that may arise, and examine and address biases if they are hindering participation.

Norming: Extension workers should be able to demonstrate that the group processes are free and fair and that members feel welcomed, informed and involved; and engage members in collaboration and teamwork.

Performing: Extension workers' role should be to encourage group members, celebrate group success, and empower members to learn new skills and think about new plans.

Adjourning: Extension workers should facilitate the smooth transition of a group to either dissolve or move to a more advanced stage, depending on how members want the group go. Once a group accomplishes its predetermined tasks, members may come up with new needs and demands. Extension workers should be able to provide proper guidance so that members know what their next destination is and how to reach it.

Additional Tips on Forming Groups

- Socioeconomic and cultural differences persist in societies (Bunch, 1995). Be familiar with the geography, economy, education, cultures and farming systems of the communities you plan to work with.
- Select members who agree to work on a common agenda and who live close by. People with similar backgrounds form an effective group to work with.
- To know the society and its issues better, visit members at their homes and/or farms and get firsthand information.
- Meet people as many times as you can. The more you meet and listen to them, the more they trust you.
- Participate in local cultures -- language, food and other customs to get closer to the people and establish trust with them.
- Understand the strengths and interests of local people.
- Demonstrate that you are accountable and responsible to the group and the local people.
- Let all members speak. Encourage women and members from minority ethnic groups to speak, too.
- Nurture the group by explaining to group members the benefits of being and working in groups.
- Facilitate group processes such as selecting leaders, engaging in dialogue about and deciding on goals and objectives, and formulating an action plan.
- Encourage members to meet regularly.
- Encourage the group to make its work transparent and keep records of its work.
- Guide group members in avoiding interpersonal conflicts and personal allegiances.
- Learn negotiation skills to use when conflict occurs in the group.

Communities have members with many interests, needs and degrees of power, which may lead to conflict and confrontation within a group. As an extension educator, you should be able to help groups and their members to negotiate and defuse the conflict. According to Fitzgerald (2012), negotiation is a conferring of two or more individuals or groups to reach an agreement,

generally by exchanging promises and/or concessions. Fitzgerald adds that negotiations could be distributive or integrative and explains their differences. The former is competitive, and there is zero-sum gain – that is, one party's gain would mean the other party's loss. In integrative negotiation, the parties cooperate as partners to maximize benefits by combining interests into an agreement. Integrative negotiation is based on information sharing and bargaining as well as a collective search for options, alternatives and solutions. Successful extension workers are able to promote integrative negotiations.

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Tool 22: Write Field Reports

A field report is a document written by extension workers reporting their activities to their supervisors and other stakeholders. A field report helps to keep the government or supervisors/line managers informed of field activities. Furthermore, field reports document for the extension professional important information and records pertaining to an undertaking or set of undertakings in the community. A report helps in tracking tasks accomplished and documenting the progress and challenges faced. It helps build institutional memory, which is useful for planning the next stages of a project or replicating it in other regions.

What is needed to write a good field report?

An extension fieldworker should maintain a diary where s/he notes key tasks and activities completed on a daily basis. Record details such as how many households were visited, who were the people helped and what the attendance was. A report might be written at the end of a month or a quarter. Letting the report go much longer will mean that a lot of details will be lost.

Common ways to gather data as suggested by University of South California (2015) are:

Note taking: Taking notes is the most common method of recording observations across disciplines such as social work, anthropology, etc. To save time in the field, it is useful to develop shorthand symbols beforehand so that recording basic and repeated actions can be made simple. Keep a note of who is the person you are referring to, even if the activity is being repeated.

Video and audio recordings: Video or audio recording your observations has the positive effect of giving you an unfiltered record of the observation event. It also facilitates repeated analysis of your observations.

Illustrations/drawings: The need is to record details -- for example, to draw a map of the observed setting, a village map to remember the location of the main amenities or illustrate objects to document people's behavior. This can also take the form of rough tables to list those activities that were observed frequently.

How to write a report?

You have the information, but how to present is always a question. These steps can help organize items in a logical manner.

Step 1: Brain write

Like brainstorming, this is a process of thinking about the subject of the report in its length and breadth. Unlike brainstorming, the process takes place in the individual's head. Make a note of all the basic points that will go into the report (Greenhall, 2010).

Step 2: Develop the content

Work on the content and structure separately. Put down all content on paper, and assess the content and decide what ought to be included.

Then, consider how the information will be organized and structured in the report.

Step 3: Structure the content

Write the report in the following structure.

The first part introduces the purpose of the report, stating why the report is being written.

The second part is the main substance.

Describe the process of how people were brought into the program. Here list out which methods were used and which one(s) worked well in establishing rapport -- e.g., dialogue, home visits, demonstration. A comparative analysis among methods might be useful. Did women show interest in joining in? What was the rate of adoption?

Make a separate section on challenges. What acted as a hindrance -- e.g., language, credit, resource access, dependability?

The third part has concluding remarks which contain reflection from the writer on what could have been improved.

Additional tips

A report that is concise and well-structured is reader-friendly.

Check over the report. Ensure that the final version is clear and free of grammatical errors.

Include a field map which you can prepare by consulting local people.

Keep it precise! This is an age of information when people want to know about many topics but in brief.

Format for monthly field report for extension workers

Top of the report: Give the period (e.g., 1 August 2014 to 31 August 2015)	▪ Name of the state ▪ Name of the district ▪ Name of the reporting officer ▪ Names of the blocks and villages visited ▪ Number of working hours
Section I: Plan of the month	▪ Plan for the month ▪ Work assigned by the district collector, chief or the supervisor
Section II: Tasks accomplished	▪ Include the plans. ▪ List the tasks that are partially completed. ▪ List completed tasks.
Section III: Observations	▪ How do people interact in meetings? ▪ Which innovation received wide acceptance? ▪ Why was it more liked than others? Cost-effective, better yield, higher availability? ▪ Who were most keen to adopt?
Section IV: Issues and challenges	▪ In the field: those faced with the community ▪ Administrative: those faced with funding agency, government, non-governmental organizations, etc.
Section V: Analysis	▪ Include tasks done, who were early adopters and why, which farmers were resisting adoption and why. ▪ List other observations from the field.
Section VI: Self-introspection	▪ What did you do that you could improve on? For instance, you might have convinced 11 local people to adopt a new variety of vegetable but only one is a woman. So you realize that your effort needs to be more directed toward including women.
Section VII: Planning	▪ Plan the tasks for next month (this becomes Section I for the next month).

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8. Program Evaluation in Extension

Evaluation is an essential part of an extension program. It is a management tool that involves measuring and reporting on the results and impacts of extension programs and projects. It serves the accountability function.

Evaluation is the systematic assessment of the operation and/or the outcomes of a program or policy. USAID (2011) defines evaluation as a systematic collection and analysis of information about the characteristics and outcomes of a program or project as a basis of judgment to improve its effectiveness and/or to inform decisions about current or future programming.

Program evaluation is an essential competency for extension workers. They need to possess skills in systematically gathering and analyzing evidence about the usefulness and impact of extension programs. Evaluation should serve as a management tool -- for accountability and organizational learning and development.

Accountability Questions Asked by Funding Entities

- Should the government and donors continue to fund extension programs?
- Are the extension programs effective? Who benefitted and what impacts were made?
- How would you improve or terminate ineffective extension programs?
- What new programs should be implemented to meet the needs of farmers or to address changing needs of the rural agricultural clients you intend to serve?

When do we conduct evaluations?

Evaluation should be planned at the time of planning the program itself.

Evaluation has several usages -- program planning, program improvement, accountability and marketing. Accordingly, evaluation data can be collected at various stages of a program or project.

The design stage: A needs assessment evaluation helps you to know the target audience, local needs and conditions, program priorities and their desired outcomes.

The start-up stage: This establishes a baseline to which changes resulting from the extension program can be compared later.

While the program or project is in progress: A formative evaluation is conducted while the program is being implemented. Collecting information during a program or project helps managers determine whether the project is going as planned and whether adjustments are needed in the project.

After the program wraps up: A summative evaluation is conducted toward the end of a program to help decision makers determine a program's impact and its future. The focus is on determining program results and effectiveness. Extension managers can use summative evaluation findings to make major decisions about programs – continuation, expansion or reduction, and funding.

Long after the program finishes: follow-up: This stage of evaluation looks at the long-term benefits of a program.

Evaluation can involve quantitative, qualitative or mixed method. As explained above, the purpose and motive guide the choice of method.

Quantitative methods measure a finite number of predetermined outcomes and are appropriate for judging effects, attributing cause, comparing or ranking, classifying and generalizing results. Quantitative methods are suitable for large-scale projects; useful for judging cause and effect; accepted as more credible by those who are oriented toward numbers; and applicable for generalizing to a larger population. Examples of quantitative methods are census data and surveys.

Qualitative methods involve rich descriptions of people, places, conversations and behavior. These methods are good for understanding the context in which a program takes place; understanding complex problems and process issues; clarifying relationships between program objectives and implementation; identifying unintended consequences of a program; understanding operations and effects of programs; and conducting in-depth analyses of program impacts. Focus group discussion, in-depth interviews and participant observation are examples of qualitative methods.

Mixed methods combine qualitative and quantitative methods within one evaluation study. This combination can be used to offset biases, and they complement each other by contributing the strengths of the varied methods. Multiple methods are appropriate for understanding complex social phenomena, allowing plurality of viewpoints and interests.

Does evaluation involve research?

The goal of research is generation of new knowledge. Research could be basic or applied. Evaluation falls more under applied research. It uses a wide array of research methods ranging from observation to experimental research.

A good extension program identifies specific outcomes and impacts that can be measured by collecting and analyzing data about the program. Evaluators typically try to identify cause-and-effect relationships between an activity designed to induce change (such as a farmer field school) and a particular desired outcome (such as increased knowledge about improved farming practices among participants).

Evaluations make use of various kinds of data collection tools. Figure 13 displays common tools and techniques for various evaluation stages.

Program stage	Types of studies	Typical questions answered	Examples of evaluation tools and techniques
Planning stage	Needs assessment Feasibility study Baseline study	What are the felt and unfelt needs of the audience? Can extension address these needs? Do they fit with extension's mission? Is the program or project socially, economically, environmentally feasible?	Surveys Focus groups Observation Content analysis (e.g., of office records) Economic analysis (e.g., benefit/cost analysis)
Imple-mentation stage	Formative evaluation Program monitoring	Is the program meeting its objectives of intended outcomes? Is the audience satisfied with the program? Are the media delivering program messages?	Annual monitoring reports (e.g., staff time and activity reports, crop yield, seed cost) Adoption patterns for new technology Evaluative studies of knowledge, attitude and behavior change Customer satisfaction surveys Content analysis of news releases
Concluding or results stage	Impact assessment Summative evaluation	Has the program addressed the needs or gaps identified? Is the program achieving desired outcomes? Is the program cost-effective?	Pre- and post-project data analysis Cohort studies Panel studies Surveys (e.g., personal interviews, telephone surveys, mail surveys, online surveys) Economic analysis

Figure 13. Evaluation tools and techniques by program stage (Suvedi and Vander Stoep, 2014).

Are monitoring and evaluation related?

Monitoring helps to ensure that programs are implemented in accordance with their design and objectives, and it helps answer questions such as "Are we doing it right?" Monitoring usually

tracks resources (e.g., funds, personnel and supplies) and processes (e.g., occurrence of meetings, number of participants, demonstrations and publications).

Evaluations are used to provide evidence about whether specific extension programs are good investments or achieving the intended goals and objectives. They are based on the comparison of observed changes in the project target outcomes (e.g., changes in a target population's quality of life—satisfaction with services, production levels, economic gains) from before and after the launch of the project/program or implementation of a new policy. They may utilize quantitative analysis, using a counterfactual (i.e., control group) to estimate the extent to which changes can be attributed to the project intervention. Usually, impact assessments use an experimental or quasi-experimental design.

Examples of Questions for Monitoring

- Are farmers receiving agronomic information in a timely manner?
- Are extension meetings attracting a sufficient number of farmers for successful implementation of a program or project?
- Are demonstrations conducted as planned?
- Are farmers adopting new practices?

Monitoring of a program's performance and impact evaluation are related, but they require different methods and levels of rigor. Monitoring tracks key indicators of progress over the course of a program. Evaluation looks at the value or worth of the program and its activities. It looks at impacts -- lasting or long-term effects of the program or project. What difference did the extension program or project make in the lives of the people? Did it improve food availability or food utilization? Did it increase local use of local foods and reduce incidents of illness? Did it increase household income?

© M. Suvedi. Monitoring commercial horticulture gardens in Cambodia.

Similar to monitoring, operation evaluation seeks to understand whether implementation of a program has unfolded as planned. The aim is to compare what was planned with what was actually delivered to determine if gaps exist between planned and realized outputs (Khandker et al., 2010).

Extension impacts and evidence hierarchy

Evaluations can look at the short-term, medium-term and long-term impacts of a program or policy. Knowledge or awareness creation can be a short-term impact of extension programs. For example, farmers gain knowledge of an improved practice through participation in a method demonstration. Behavior change or adoption of new farming technique may take some time, so behavior change could be a medium-term impact. Improvement in living conditions, food

security and nutrition could take even longer to realize and thus are long-term impacts of a program or policy.

Extension programs have many objectives — such as informing people about a technology, changing people's knowledge or skills to use the technology, or promoting the adoption of new technology in the community. There is a relationship between program objectives and outcomes at different levels. Figure 14 illustrates the difference in information gathered for different objectives. That is, there are different levels of evidence required for different levels of programs being evaluated. Note that the higher the level of evidence, the longer time it takes to realize the outcomes.

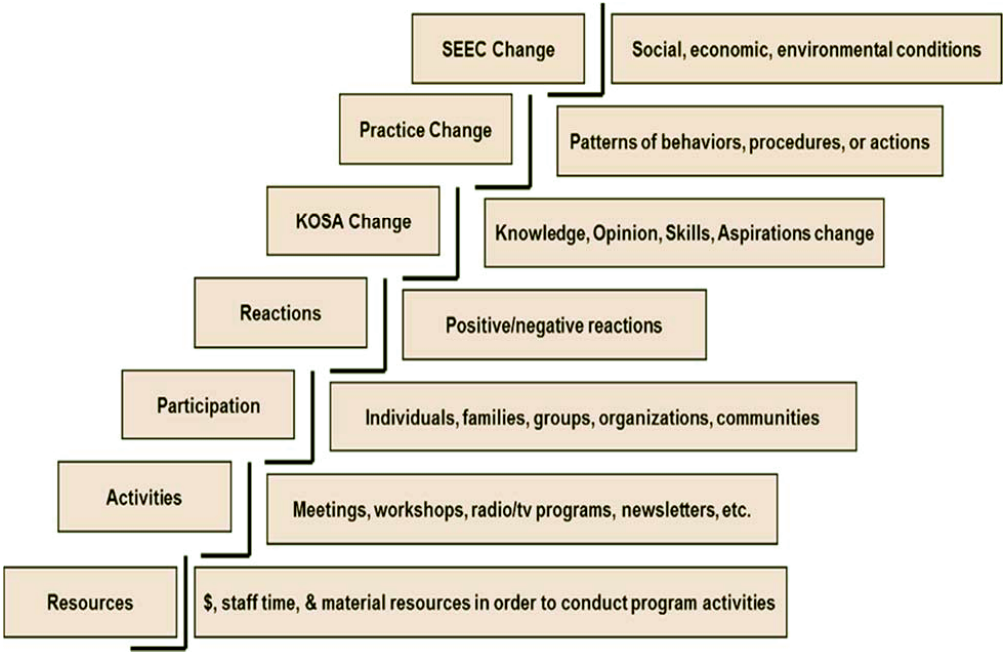

Figure 14. Hierarchy of program evaluation (adapted from Bennett, 1979 and Suvedi, 2011).

Challenges in evaluation of agricultural extension programs

Agricultural extension organizations are complex. The structures of extension organizations, their goals and objectives, methods of information delivery and accountability requirements are not uniform. Local farming systems and contexts vary. In most countries, the goal of agricultural extension has been the transfer of technology or improved farming practices. In some countries, extension focuses on non-formal education for farmers. Therefore, it is not possible to offer a recipe for best practices on monitoring and evaluation.

Suvedi and Vander Stoep (2014) outlined three major challenges in evaluating extension programs:

- Extension services frequently use a descriptive, one-shot case study for impact evaluation. We lack the use of most rigorous and direct assessments of cause-and-effect outcomes of extension programs and services. Extension needs to establish a scientific knowledge base. For example, do farmers who attend extension meetings adopt hybrid corn varieties earlier than those who do not? Do farmers who attend extension meetings generate a higher net income per hectare than those who do not?
- In the context of public agricultural extension and advisory service evaluation, it is difficult to establish a control or comparison group, maintain uniform treatments and measure long-term impacts.
- Most evaluations are managed from national headquarters or by development partners. They lack baseline data on impact indicators. Monitoring data are lacking. Frequently, expatriate evaluators visit the project site for a short time period to assess impacts. They do not examine the ripple effect – i.e., assess how direct impacts of an extension program or projects may, over time and geography, spread indirectly to others, thus resulting in expanded impacts over time.

Extension workers require competencies in planning and conducting evaluations. The traditional role of an evaluator was more of an expert or objective observer. Today, evaluators are educators, facilitators, interpreters, mediators and/or change agents. Extension workers should be able to conceptualize and design an appropriate evaluation plan, use qualitative and quantitative tools in data collection and analysis, and write a simple evaluation report.

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Good Practice Tools for Program Evaluation

Tool 23: Design Survey Instruments

Survey instruments play vital roles in extension data collection, research, monitoring and evaluation. Monitoring and evaluation of extension programs and/or services are more effective if they are systematic and they use well-articulated instruments. Well-designed survey instruments help generate valid and reliable data that help effectively assess extension services and draw trustworthy conclusions. Therefore, it is essential that extension workers are familiar with the art and craft of designing survey instruments. This section, like the others on various tools, is a quick overview that cannot substitute for a course, seminar or text on the subject matter. The following notes are adapted from Dillman et al. (2009) and Suvedi (2011) to present key elements in the proper design of survey instruments for evaluation and study of extension services.

Survey instruments are complex tools that are designed to look simple and welcoming to potential respondents. Their design requires diligence, knowledge and skill. When people look at a survey, they may think that it is easy to design one. But they may better understand the survey questionnaire's depth and complexity once they actually involve themselves in taking the survey or when designing a survey. Survey design needs to be planned early because it often takes considerable time. Designing a survey instrument in such a way that respondents find it easy to answer, that the survey yields valid and reliable data, and that data are easy to code and enter for analysis is no simple task.

This section on survey design lists the characteristics of a survey instrument and ways to overcome common wording problems, and then briefly discusses measures to attain high validity and reliability. Some guidelines for designing survey questionnaires follow.

Characteristics of well-designed instruments

- Appealing: Respondents would be willing to respond. This minimizes non-response error.
- Clear questions: Respondents provide accurate responses. This reduces measurement error.
- Simple and easy to respond: Respondents need find the survey easy to understand and quick to complete. This increases the response rate.
- Respect the respondents: Keep cost of responding (time and effort) low, and maximize the benefit (utility of findings, sense of contribution, etc.).

Validity and reliability of survey instruments

Validity and reliability are two very important aspects of survey instruments and survey research. Validity hinges on these questions: Does your instrument measure what you intend to measure?

Does the instrument capture accurate measures of the concept of interest? There are three types of validity: criterion, construct and content validity.

Criterion validity is divided into concurrent validity -- the instrument relates well (correlates) with another established measure of the same concept administered at the same time -- and predictive validity -- the instrument relates well to some phenomenon in the future.

Construct validity concerns the theoretical argument and basis of concepts measured in the evaluation/research. Content validity concerns whether the range of items included in the instrument are relevant to the task and context.

Reliability tests should reveal whether your instrument consistently measures what it is supposed to measure. Statistical tools are available to check reliability. However, you are advised to consult and seek advice and input from experts, academics and peers on instruments you develop. Such peer review is vital to designing valid and reliable survey instruments.

Guidelines for developing effective questionnaires:

- Make a list of variables, with key words or phrases, that the questionnaire is intended to collect data on.
- Draft items (i.e., survey questions) for each variable of interest.
- Assemble the draft items into a questionnaire. Combine questions that can be joined together and weed out redundant questions. Organize questions into a logical order with a flow. Start with easier items.
- Refine question items and analyze each item for potential flaws.
- Field-test/pretest the questionnaire. Have colleagues or a small sample of respondents complete the questionnaire. Revise items on the basis of their feedback and on the basis of preliminary analysis of pretest data.

Writing questions

The questions used in a questionnaire are the basic components that determine the effectiveness of your survey. Writing good questions is not easy and usually takes more than one try. Consider what information to include, how to structure the questions and whether people can answer the questions accurately. Good survey questions are focused, clear and to the point.

Every question should focus on a single, specific issue or topic.

Poor: Which brand do you like best?

Better: Which of these brands are you most likely to buy?

The objective of these questions is to measure consumer preference. The first question lacks focus; consumers may like a particular brand but may not buy it because of its high price.

The meaning of the question must be completely clear to all respondents. Clarity ensures that everyone interprets the question the same.

Poor: When was the last time you went to the doctor for a physical examination on your own or because you had to?

Better: How many months ago was your last physical examination?

The first question could be interpreted in weeks, months or years, or by date.

Keep questions as short as possible. Short questions are easier to answer and less subject to error by interviewers and respondents. Long questions are more likely to lack focus and clarity.

Poor: Can you tell me how many children you have, whether they're boys or girls, and how old they are?

Better: What is the age and sex of each of your children?

A respondent may answer the first question ambiguously. For example, "I have two boys and a girl. They are 5, 7, and 10 years old." It is not possible to determine the ages of each child from this response.

Questions should be written to avoid bias.

Poor: Is it true that our extension agents always work long hours?

Better: On average, how many hours do extension agents work in their job?

How to avoid poorly worded questions/survey items

Do not use:

- Loaded or emotionally charged words that are likely to prejudice the responses.
  Example: Do you agree with federal support of imperialistic international corporations?
- Double-barreled questions
  Example: Did you take chemistry 101 and work in chemistry lab?
- Esoteric or technical words
  Example: Do you practice the principles of andragogy in teaching English to immigrants?
- Negatively worded questions
  Example: Are you not boycotting GMO food products?

Designing open-ended questions

Open-ended questions seek responses that may be numerical but they may also be descriptive or elaborative. Respondents provide answers in their own words. Provide adequate spaces for answers. Provide unit labels with the answer spaces. Questions seeking description should provide extra motivation to respond (Dillman et al., 2009). The following example is self-illustrative.

A poorly constructed question:

Why did you choose the new variety of rice?

A revision that provides extra motivation to respond:

Your answer to this question is very important for understanding what motivates farmers to adopt the new rice variety. Why did you choose the new variety of rice?

Assembling the questionnaire

- Make it easy to read and keep it as short as possible, but not so short that you fail to collect the data that you need.
- Introduce the instrument with a cover letter, cover page and/or opening section.
- Organize the content in some logical order (from respondents' perspective).
- Leave sufficient space between questions so that it is easy to read the questions.
- Clearly indicate branching or which questions are next for respondents' attention.
- Reduce the chance of misreading. Use boldface for key words.

How to overcome common wording problems in a questionnaire

- Be specific and keep sentences short.
- Use commonly understood words and avoid vague words.
- Avoid talking down to respondents.
- Avoid being overly specific if the question does not require such specificity.

Specificity: Each question should focus on a single, specific issue. Avoid double-barreled questions.

Meaning: The meaning of each question should be completely clear to all respondents.

Length: Keep questions short and simple.

Bias: Questions should be written to avoid bias.

Designing a mail survey -- some suggestions:

Front cover

- Choose a good title that is clear, to the point and catchy.
- Use graphic design or illustration that adds interest.
- Put name(s) of sponsor(s) and return address.
- Format using 12-point elite type fonts and print the booklet on off-white bond paper.

Back cover

- Invite respondent to make comments if any.
- Offer blank spaces for comments.
- Thank respondent for his/her time and participation.

Between covers

- Provide sample/example if needed.
- The first two questions are very important to draw respondents' attention and interest on the issues, so these questions should be especially appealing.
- Order questions so that the most interesting and topic-related ones come first.
- Put questions seeking personal details toward the end -- e.g., questions about age, income, etc.

Questionnaire design

Individual page design: Remember that the questionnaire is for the respondent. So make it easy for the respondents to understand, follow instructions and answer.

- Put blank space between questions.
- Maintain vertical flow.
- Provide adequate instructions for each question at the right place.
- Use numbers rather than boxes or fill-in-the-blank lines.
- For skip questions, provide clear directions or arrows.
- Avoid having questions continue over to another page.

Pretesting

Pretest the questionnaire:

- Get comments from experts on the subject.

- Pretest with people who are similar to the people in the target population.

Pretesting is done to find out:

- Do you get the information you intend to get?
- Are all the words understood?
- Are questions answered correctly?
- Are skip patterns followed correctly?
- Is there any bias on your part?
- Revise the questionnaire on the basis of the input received from pretesting.

Telephone questionnaires -- things to keep in mind

- You are writing for the ear, so questions must sound professional rather than look professional.
- Keep questions short and simple.
- Introduce yourself appropriately.
- Starting questions should be short, easy and interesting.
- Make smooth transitions from one section to the next.

Web questionnaires -- things to keep in mind

- Assess whether members of the survey population are able to access the Internet and use the web survey.
- Create appealing opening and closing pages.
- Be consistent in page layout throughout.
- Use software programs that are easy to access and simple to use, and that allow exporting data in various data analysis software.
- Test the survey for time required to fill out the survey and difficulty to answer questions, and also assess the reliability and validity of the items.

Guide to Writing Questions and Designing a Questionnaire (Suvedi, 2011)

- The title and accompanying graphic of the questionnaire should appeal to the respondents.
- The type used should be large and easy to read.
- The questionnaire should appear professional and easy to answer.
- The introduction should identify the audience, describe the purpose of the survey and give directions about how to complete the questionnaire.
- Questions should not appear crowded. Each question should be numbered, and sub-parts of a question should be lettered.
- Questions should be arranged in a logical order, with general questions preceding more specific ones. Easy-to-answer questions come first, followed by increasingly complex, thought-provoking or sensitive questions. Personal or potentially threatening questions should be placed at the end. A request for demographic information should be included near the end of the questionnaire.
- Sufficient space should be left for answering open-ended questions.
- Clearly indicate where branching occurs and where general questions resume.
- Key words should be boldfaced to minimize the possibility that they are misread.
- The questionnaire should end with a “Thank you.”

Closed- and Open-ended Questions

Examples of closed-ended questions:

1. Have you or members of your family attended IPM training at the Extension Center this year? ___Yes ___ No
2. To what extent do you agree or disagree with the new land tax policy? Circle one:

   Strongly disagree Disagree Neither Agree Strongly agree
3. Approximately how much did you spend on fertilizer during 2015?

   ___None ___$1 -100 ___$101-200 ____$201 and more

Examples of open-ended questions:

1. How do you plan to use the information acquired during this training?

---

2. What do you think should be done to improve the IPM training program?

---

3. How much did you spend on fertilizer in 2014? _____

References

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Tool 24: Conduct Surveys and Personal Interviews

Surveys are tools used to collect data related to participants' knowledge, attitudes, skills and aspirations as well as their adoption of practices. Program benefits and impacts can also be measured using questionnaires. By asking properly selected people, surveys help study characteristics of target populations. Survey questionnaires may be administered through mail, online/Internet, telephone and in person. In-person or face-to-face surveys came into use in the 1960s. Now, extension workers use all forms of surveys -- mail, in-person, telephone and web-based. Web-based surveys are getting popular among agricultural stakeholders who have access to the Internet. Survey questionnaires have two parts -- sets of questions and sets of answers; and answers can be closed-ended or open-ended (Frechtling et al., 2002).

© MSU. Conducting personal interview in Nepal.

Surveys usually generate quantitative data, but there is an increase in use of open-ended questions in surveys that seek out data for quantitative and qualitative analyses.
As an extension educator, you need to understand how to design and administer surveys as well as make sure to follow and maintain ethical standards for research/study.

Why to use surveys

- They permit collection of data concerning complex questions.
- They allow for anonymity of respondents.
- They are cost-effective to administer.

- They may be well-suited for reaching a large number of people and getting their input, feedback and data. This is particularly useful when the target population is widely dispersed.

Limitations of surveys

- They do not easily ascertain cause-and-effect relationships.
- They often require a fairly literate population.
- Identifying appropriate samples of potential respondents may be a challenge.

Mail surveys

Following are the strengths/advantages of mail surveys.

- Mail surveys can be used in a large and widely distributed population could not easily be reached by in-person or telephone surveys.
- They are often cost-effective.
- They provide a sense of privacy to respondents when answering survey questions.
- They are less sensitive to biases introduced by interviewers/enumerators.
- Questions can be made appealing by using visual aids.

Mail surveys are effective when:

- Members of the target population are educated and literate.
- Local or national postal/mail service is efficient and reliable.
- The subject matter is appealing to respondents.
- Incentives are provided.
- The survey is pretested to make sure that respondents understand the questions.
- The questionnaire is short and simple.

The basic steps in implementing a mail survey from Suvedi (2011) illustrate the process to conduct a mail survey.

Basic Steps in Implementing a Mail Survey (Suvedi, 2011)

Step 1. Prepare survey material. Design a written questionnaire. Put an identification number on each questionnaire to track returns. The appearance of a mailed questionnaire affects response. The questionnaire must "sell" itself to the respondent to be returned. Therefore, considerable care should be taken in designing the format of the questionnaire.

- A simple booklet can be constructed by folding an 8 ½ by 11-inch paper in half.
- Make questions fit the page so that the respondent does not need to turn the page to answer a question.
- Provide easy-to-follow directions on how to answer the questions.
- Arrange questions and answers in a vertical flow. Put answer choices under, rather than beside, the questions.

Step 2. Pretest the instrument to assure validity and reliability.

Step 3. Select the survey population, develop a sampling frame and determine sample.

Step 4. Develop a mailing schedule. Two weeks before mailing the survey, send an advance letter. Mail the questionnaire, including a cover letter and a stamped, self-addressed envelope. Send a postcard a week or so later, thanking those who responded and reminding those who did not to return their surveys. Three weeks after mailing the first questionnaire, send a follow-up letter stating that a response has not been received; include a replacement questionnaire and a stamped, self-addressed envelope.

How to increase the response rate in a mail survey

Using social exchange theory, maximize the perceived benefits of participating in the survey and minimize the cost and effort to complete and return survey.

- Personalize contacts to respondents: Respondents will likely answer a mail survey if the survey package they receive has a cover letter printed on a letterhead, contains the original signature of the sender and is addressed to the respondent in his/her name.
- Include a token of appreciation with the survey request: Token incentives such as a store coupon, a tea bag or a phone card motivate people to participate in the survey.
- Use multiple contacts— notice letter, questionnaire mailing, a reminder, a replacement questionnaire -- help improve survey response rate.
- Make the mailing package look professional so that it is not mistaken for junk mail and people read it and respond to it. Using registered and express mailing service may help to get quicker responses and a higher response rate.

- Organize the elements inside the mailing package well and make them appealing to receivers.

In-person (face-to-face) survey

The interviewer or enumerator meets each interviewee/respondent separately and in-person. Typically, the enumerator reads questions aloud to potential respondents and records their answers to the survey questions. This method is common in the developing countries where people cannot respond to mail surveys because of low literacy levels and/or unreliable postal service. It is also commonly used when it is important to screen potential respondents so that only the target population participates in the survey.

In-person interviews typically cost more than mail surveys for each completed questionnaire. Face-to-face surveys require a trained and skillful interviewer and require close supervision of field data collection. Further, interviewer bias is a major challenge of in-person surveys. Therefore, the training of interviewers before data collection and close supervision during fieldwork is required to minimize interviewer-related bias.

Initiating contact instructions for interviewer/enumerator:

- Introduce yourself; show your identification/ID or credentials.
- Explain the purpose of the survey.
- Follow informed consent protocol. Typically, this involves assuring potential respondents that their participation is voluntary and that their answers will remain confidential.
- Explain how respondents were chosen for the survey.
- Explain how long the survey will take, how results will be used, incentives, and potential benefits to the respondent or the community.

Guidelines for face-to-face survey interview:

- Select a mutually convenient time for the interview, and be punctual.
- Express appreciation for the respondent's responses and willingness to participate.
- Read questions exactly as they are in the questionnaire and record answers accurately.
- Do not express your opinions -- that may affect/influence the respondent's answer.
- Use neutral prompts (e.g.," I see," "Tell me more," "So how would you like to respond?," "I am writing that down," etc.).
- If an answer to an open-ended question is incomplete or appears irrelevant, probe to get a clearer response (again using neutral prompts).
- If a respondent refuses to answer, acknowledge and respect his/her decision. Stop interviewing when respondents ask you to stop.

Telephone survey

One by one, interviewers read aloud questions from a written questionnaire to respondents using a telephone. Respondents' answers are recorded by the interviewer in answer sheets or digitally.

Advantages: Telephone surveys can produce results quickly. It is easy to deal with questions that may arise.

Limitations: Members of the target population may not have access to telephones. Some questions may not be suitable for telephone surveys. Trained and experienced interviewers reduce the chance of errors. For example, interviewers may not read questions word for word as written in the survey or may use inappropriate languages, e.g., "That's great," "You are lucky," etc. (Chen and Huang, 2006).

Chen and Huang (2006) suggest the following steps in conducting a telephone survey:

- Design and pretest the questionnaire.
- Recruit interviewers and train them.
- Conduct a pilot test. Revise the questionnaire and survey procedures.
- Finalize the questionnaire with response forms.
- Conduct the phone survey.
- Provide on-site, taped monitoring or supervision.
- Assemble results.
- Report findings.
- Evaluate results and costs.

Online and web-based surveys

- They can be relatively inexpensive and fast (e.g., provide ready- to-use data).
- They are flexible.
- They can be designed using color, animation, sound, video, dropdown menus, etc. The design makes surveys attractive and appealing to respondents.
- They can be administered using several online survey programs: Survey Monkey, Qualtrics, Zoomerang, Vovici, 123-survey, etc.
- Respondents can reply whenever they have time and deem appropriate. They also get privacy while they answer the questions.
- There is no interviewer bias.
- They provide ready-to-use data that can be directly downloaded from the survey program for analysis.
- Some web surveys even allow doing preliminary analysis and preparing reports.

Making web surveys more effective:

- Personalize all contacts to respondents. Sending a personalized (Dear [First Name, Last Name]) email results in higher response than impersonalized (Dear Student) emails.
- Use multiple contacts with varying messages.
- Distribute the emails at the right time. Avoid festive seasons and times of the year when people are busy with other work.
- Keep email message short and to the point.
- Explain clearly how to access the survey.

Reducing survey errors

Coverage error

"When not all members of the population have a known, non-zero chance of being selected in the sample for the survey and when those excluded are different from those who participated in the survey coverage, error occurs" (Dillman et al., 2009). It occurs when not all people selected have access to or are familiar with the tools used to collect data, or the population itself excludes certain group of people. For example, the Internet. Some people have access to it and others may not. Those without internet will be excluded from the study. To minimize this error, redraw the list from which the sample is drawn to include all elements of the population.

Sampling error

Sampling error occurs when a subset or sample of all people in the population is studied instead of doing a census. To reduce this error, increase the size of the sample, use random sampling and remove duplicate observations.

Non-response error

Non-response error occurs when not everybody in the sample fills out the survey and those who responded are different from those who did not respond. Motivate the respondents to respond to the survey, for example, by sending reminders and including some gift vouchers. Compare early to late respondents. If no difference is apparent, results may be generalizable to the larger population. Contact about 10 percent of non-respondents and gather data from them. Compare these data with data from the respondents. If no difference is apparent, results can be generalized to the larger population. Compare respondents to non-respondents on known characteristics. If no difference is apparent, the results can be generalized to the larger population.

Measurement error

Inaccurate answers to survey questions lead to measurement error. It could be the result of unclear questions, unclear wording of the questions and/or user-unfriendly survey design. Since an interviewer is not present when respondents fill out the survey, the way respondents interpret the questions may be different from what survey designers intended. To minimize

this error, take extra care in writing clear, unambiguous questions that people can and want to answer, train your interviewers carefully, use valid and reliable instruments, seek experts' input on questionnaires and pretest carefully.

Make responding to your Survey a positive experience for respondents

Consider the following suggestions from Dillman et al. (2009) to increase the benefit and decrease the cost of participation in surveys:

- Provide essential information about the survey: its objectives, how to answer the questions, etc.
- Show positive regard to respondents.
- Say thank you.
- Give tangible rewards -- for example, gift vouchers, ice cream coupons, etc.
- Make the questionnaire interesting.
- Make the survey convenient to respond to.
- Avoid talking down to respondents.
- Make the questionnaire short and simple and easy to complete.
- Put personal and sensitive information toward the end of the survey.

Note: Respondents participate in the survey when the perceived cost of the survey is less than the perceived benefit.

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Tool 25: Conduct Participant Observations

Participant observation entails gathering information about behavioral actions and reactions through direct observation, interviews with key informants and participation in the activities being evaluated. As used in evaluation and needs assessment, the educator or evaluator immerses him or herself in the setting being studied with the intent of understanding the world through the eyes of stakeholders (Butler and Howell, 1980; Suvedi et al., 1999). Participant observation is useful in determining community conflicts or misunderstandings, assessing community needs and problems, and/or identifying means to involve local people in problem solving.

Participant observations are mainly of two types — direct and indirect, though you can also use a combination of the two. It could be overt or direct, such as walking through a village to observe what is going on, working with participants and being part of the participant community; or it could be indirect -- e.g., naturalistic observation, case studies and content analysis. As an evaluator, you need to judge possible pros and cons and decide which approach is likely to work best. However, it will be hard to justify the observation when observers conceal their identity and participants who or whose activities are being observed are not aware that they are being observed.

Advantages

- Observation takes place in its natural setting. It is unstructured and flexible.
- It can be readily combined with other methods.
- It is useful for small units such as a neighborhood, a classroom or a group.
- It's useful in assessing long-term effects of programs or practices on local residents.
- It may uncover behavioral patterns, social processes or problematic issues that participants are not aware of.

Disadvantages

- It rarely provides enough information for an evaluation and must usually be combined with other methods, such as interviewing.
- It requires an evaluator with well-developed observational skills. The evaluator has little to no control over the situation.
- The presence of an evaluator may change the behavior of the group being observed. Observations may not be generalizable.
- The observer may lose objectivity as a result of being a participant. Time is often a limiting factor.
- It may not be suitable for large and/or heterogeneous groups.

How to conduct participant observation

Participant observation follows a four-stage process: preparation, entering the venue and building rapport with participants, beginning the observation and exiting the venue (Suvedi, 2011).

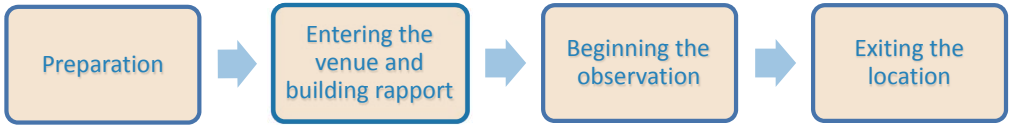

Figure 15. Participant observation process.

Step 1: Preparation

- Have your conceptual framework ready with preliminary issues and the possible relationships between them defined before conducting the observation.
- Identify sources of information related to the study issue(s).
- Using informal sampling technique, select the observation site. Selecting two or more sites allows for comparative analysis of data. The site selected should represent the type of program or organization being observed. Make sure that the organization accepts the observation evaluator. When to enter the observation site is crucial for one-time activities, seasonal events or those with a daily routine.
- Assemble tools for observation: notebook, pen, camera, tape recorder, etc. How data is recorded depends on the situation. You may want to take notes on the spot and expand them later, or you may want to make notes after finishing your observations. Photographs and tape recorders assist in recording, but in some instances they may be intrusive and influence the situation being observed.

Step 2: Entering the venue and building rapport with participants

- Inform participants of the study objectives, methods, its benefits and costs, and their voluntary participation in the study. Seek participants' consent to observe before starting observation.
- Building rapport and establishing trust with participants is very important. First, to ensure that participants accept you and let you do your activity. Second, to enable participants to act naturally as they would do if you were not present.

Step 3: Beginning the observation

Focus only on those aspects of the activity pertinent to the topic being studied. The following questions may help guide your observations:

- What is the setting of the scene you observe?
- Where are you in relation to the scene you observe?

- What is the situation when you engage in observation – e.g. time of day; approximate number of participants; participants' ages, genders, ethnicities and classes, and relationships (if any) among participants.
- Are you a participant in the activity? If so, how did your participation affect your observation?
- What does the scene you are observing make you think about? What puzzles you? What do you think you understand?
- Is the activity similar to or different from other types of activities you have observed in similar settings?

Take notes of what you observe. You may write major points while at the observation venue and elaborate those points later after you come out of the venue.

Step 4: Exiting the location

Before leaving the venue, recheck the informed consent protocols; check the data and make sure they are complete and organized, and that you have a back-up copy. Acknowledge all for the help they have provided, and save the contact details of participants. You may need to contact them in the future.

References

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Tool 26: Conduct Rapid Rural Appraisals and Participatory Rural Appraisals

Rapid Rural Appraisal (RRA)

An assessment approach that involves multiple data collection techniques that are quick, flexible, and adaptive is Rapid Rural Appraisal. The approach aims to incorporate the knowledge and opinions of rural people in the planning and management of development projects and programs. Usually, a multidisciplinary team of experts visits a community to learn about local people's situations, experiences, and problems from a local perspective. The team may use key informant interviews, observations or check lists, focus group interviews, a nominal group technique, and/or other group methods to solicit ideas, opinions and perspectives of the local people.

© MEAS. Team conducting a rapid appraisal in Bangladesh.

Advantages

- It is low-cost. Requires little time.
- Can encourage local participation. Can decrease outsider bias.
- Can encourage participation of frequently overlooked groups. Offers flexibility in method selection.

Disadvantages

- Seasonal bias. Accessibility bias. Elite bias.
- Hypothesis confirming -- selective attentiveness.

- Concreteness bias -- confusing specificity with generality.
- Consistency bias -- premature formation of coherence in data.
- May not be generalizable.

The RRA team can capture more in-depth information than surveys. For example, RRA can be used to gather comprehensive information about farming conditions such as the following:

- Crops grown (by season)
- Land use intensity (e.g., cropping system, inter-cropping)
- Farming system (e.g., crop-livestock, use of agro-forestry)
- Soil types and soil conditions (e.g., degree of salinity, water-logging, drought)
- Land ownership pattern
- Number of plots owned, distances from farmstead to home or between plots
- Crop yields
- Agricultural practices such as land preparation, fertilizer use, weeding, irrigation, drainage, transportation and marketing

RRA Methods Tool Box

Existing information	Visualization techniques
Individual interviews	Activity mapping
Key informants	Time series maps (e.g., crop calendar)
Oral histories	Resource mapping
Group interviews	Social organizational mapping
Focus groups	Ranking games (e.g., wealth ranking)

Steps to Rapid Rural Appraisal

Step 1: Identify goals of RRA and develop questions to ask.

Step 2: Form a multidisciplinary team and a visit schedule.

Step 3: Identify possible sources of information.

Step 4: Review existing documentation.

Step 5: Identify, adapt, and/or create data collection and recording methods.

Step 6: Adjust questions, sources of information, and approaches, as needed.

Step 7: Plan when and where to visit, and whom to contact.

Step 8: Begin data collection while remaining flexible to the local situation.

Step 9: Record data, as collected, in a systematic fashion.

Step 10: Continually analyze data by verifying responses, deepening understanding, and making distinctions and connections between responses.

Participatory Rural Appraisals (PRA)

Participatory Rural Appraisal (PRA) is a methodology for interacting with the target beneficiaries, understanding their needs and interest and learning from them. It's a "handing over the stick to the insider" in methods and action (Sasidhar, n. d.). The outsider's role is that of a catalyst or a facilitator.

© M. Suvedi. Team learning about Rapid Rural Appraisal in Cambodia.

PRA is a means of collecting different types of data, identifying and mobilizing intended beneficiary groups and evoking their participation in decision making, design, execution and evaluation of a program / project.

PRA emphasizes local participation but the process is rapid or quick. The advantages of PRA include:

- Extensive involvement of people by learning about their perceptions, experiences and capabilities.
- Information generation, collection of data for immediate or future use.
- Learning about the impacts of earlier or on-going policies and programs and to frame new ones.
- Estimating trends and ascertaining conditions of the issues at hand.
- Validation or cross checking of data collected from other resources.
- Training of different categories of people involved in the development process, and
- Research studies on use of PRA and to suggest improvements in its methodology.

RRA vs PRA

RRA and PRA look similar, but the main difference is the composition of team members. RRA tends to engage more experts or people from outside the community than PRA. In PRA, it is the expert team which leads but in PRA it is the stakeholders who lead and the researcher/extension worker just facilitates.

The major differences between RRA and PRA are summarized below (Chambers, 1994).

Category	RRA	PRA
Meaning	It is a systematic, semi-structured activity conducted on-site by a multidisciplinary team with the aim of quickly and efficiently acquiring new information and hypotheses about rural life and rural resources.	It is a way of enabling local (rural and urban) people to analyze their living conditions, to share the outcomes and to plan their activities.
Developed in	Late 1970's/1980's	Late 1980's/1990's
Key resource	Local people's knowledge	Local people's (analytical) capabilities
Main innovations	Combination of methods	Change of behavior and attitudes
Mode	Extractive	Facilitating
Mode of instruments	Verbal (interview, discussion)	Visual (participatory diagramming)
Ideal objectives	Learning from insiders by outsiders	Empowerment of local people
Outsider's role	Investigator	Initiator and facilitator
Insider's role	Respondent	Presenter, analyst and planner
A model for	Participatory intervention	For interaction
Who demands?	Donor organization	Insider (ideally)

References

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Tool 27: Conduct Focus Group Discussions

Focus groups are made up of a group of people often with some common background, interests, and goals. The facilitated discussion among these people focusing on an issue, product, or service and seeks group members' opinions, thoughts, and perceptions -- focus group discussions. Use of focus group discussions began in the 1950s in the for-profit (private) sector and were adopted by academicians in the 1980s. Focus groups provide comfortable, safe, respectful environments so that participants feel comfortable expressing their real opinions. Focus group discussion yields more valid and significant data that would be difficult to generate from an interview (Kaplowitz and Hoehn, 2001). Ideally, a group should consist of five to 10 people, but the size can range from four to 12 people if needed (Kruger and Casey, 2009). Through the process, qualitative data are generated that researchers subsequently analyze to draw study conclusions.

Why focus group discussion

Focus group discussions are employed in both exploratory and confirmatory research. The former helps dig out issues or topics that an investigator can use in research. The latter helps validate the results drawn from use of other methods. Kruger and Casey (2009) and Suvedi (2011) outlined other usages of focus group discussions: help in product or program development; provide insight into organizational concerns and issues such as customer satisfaction, organizational development, needs assessment; policymaking and testing; and planning and goal setting.

When to use a focus group

- When you are considering introduction of a new program or service, a focus group can give a sense of what people are looking for and hence a way to modulate the program to help the community.
- When questions to be asked are such that they cannot be replied to in a written questionnaire because they may not have one simple, clear answer but rather multiple, complex answers.
- To supplement the information gathered though written surveys.
- When the need is to examine people's attitudes toward various issues.
- When input has to be collected from people who might not be able to write or reach you in other ways.
- To obtain alternative ideas about how to reach certain audiences or promote a particular product.
- To learn ahead of time how people might react to a program, policy or product.
- To determine potential factors influencing satisfaction or impact of a practice, program or change.

How to conduct focus group discussion

The following steps for focus group discussion are adapted from Kruger and Casey (2009) and Suvedi (2011). While there is no magic number of focus groups that need to be conducted, there is a useful rule of thumb. One should conduct enough focus groups so that during the last one, nothing new was learned. Another rule of thumb worth keeping in mind is that typically at least three focus groups are expected in order to draw valid study conclusions.

Step 1: Preparation

- Determine the purpose. Why conduct focus group interviews? Who will use this information? Why do they want the information?
- Develop a plan — number of meetings, time line, resources needed.
- Identify the discussion questions — opening, introductory, transition, key and ending questions.
- Find a meeting venue that is convenient, preferably neutral and easy to reach.
- Identify the participants -- include those who are familiar with and have the greatest amount of insight on the topic. Participants should have some common characteristics.
- Invite them in advance -- explain to them why the meeting is organized and how they can contribute.
- Invite a few more people than you expect to attend — not everyone who is invited will attend. Reconfirm their availability. Remind them of the date, venue and time for the meeting a day before the meeting.
- Identify an interview moderator and an assistant. The moderator should be respectful to participants, understand the purpose of the study, be good at communication and be able to collect useful information. The assistant will keep notes and assist the moderator to summarize the discussion.

Step 2: Conducting the FGD

- Arrive early and arrange the meeting room to minimize outside distractions and provide adequate space and light. Arrange seats so that participants can see and listen to the moderator and to one another.
- The moderator should begin by explaining the purpose and the ground rules — rules participants follow during the interview -- and get written consent to participate. Participants need to be assured that their participation is completely voluntary, and that, though the session will be recorded, their responses will be kept confidential.
- Guide the discussion.
- The assistant moderator takes detailed notes of the discussion as it happens. Notes should include who said what and who did not participate.

Step 3: Prepare an analysis

- The moderator and assistant moderator meet immediately after the meeting, share their experiences and perceptions of the meeting, and review the audio together before they conduct the next focus group.
- Transcribe the audio, summarize the information, identify and analyze emergent themes.
- If you recorded manually, make a written summary. In some cases, you can devise and use a coding system to "score" the data and count the number of times a particular theme was expressed.
- Prepare an analysis. What do the findings mean to you? Are the findings valuable to the stakeholders? What recommendations can be made out of this information?
- Prepare a report and share the findings with your stakeholders.

Some other arrangements

Find a good moderator

The moderator should be someone outside your organization, someone who specializes in facilitating these kinds of groups. He/she should:

- Have experience in facilitating groups.
- Know something about the topic
- Be able to relate well to the focus group participants.

Find and keep a recorder

This is an important point that is often neglected. You want to make sure people's ideas are recorded. Someone should be writing down what is said in the same way as taking minutes at a meeting.

Decide on and declare the incentives

Some people may come to the discussion for help or to learn something, or just for a new experience. Maybe the novelty of the experience itself will be a motivator. Monetary incentives, the chance to learn a new skill or lunch can also serve as welcoming factors.

Prepare your questions

Go in prepared -- write out in advance a list of topics to cover and questions you want to ask. This check-list will serve as your guide.

Useful Advice

The following are general questions one can ask when dealing with groups discussing a current program or service. They can be adjusted for planned programs as well as for groups dealing with other concerns.

- "What are some of your thoughts about what's going on now?"
- "Would you say you are satisfied with the current situation, with the way things are going on?" "Or what is your view on the current situation, with the way things are going on?"
- (If so or if satisfied) "What are you satisfied about? Why is that?" (Or, "What's going well...?")
- "Are there things you are dissatisfied with, that you would like to see changed?" (Or, "What's not going well...?")
- (If so) "What are they? Why is that? How should they change? What kinds of things would you like to see happen?"
- "Some people have said that one way to improve X is to do Y." "Do you agree with this?" (Or, "How do you feel about that?")
- "Are there other recommendations that you have, or suggestions you would like to make?"
- "Are there other things you would like to say before we wind up?"

Some probes or follow-ups designed to get more information on a given question:

- "Can you say more about that?"
- "Can you give an example?"
- "Jane says X. How about others of you? What do you think?"
- "How about you, Joe. [Or, "You folks in the corner over there...."] Do you have some thoughts on this?"
- "Does anyone else have some thoughts on that?"

Sample focus group discussion invitation letter

Letterhead

Date:

Name

Address

Dear_____

Thank you for accepting our invitation to attend the discussion at (time) on (date) at (location--city, address, etc.). We will be discussing the general situation of the fishery in Tonle Sap region and the strategies for its future management. This is a study conducted by the Department of Agriculture. Over the past few years, farmers, consumers, people working for fishery development and fishery researchers have raised concerns about the fishery in Tonle Sap Lake. We want and need your opinions on fishery management on Tonle Sap Lake so that we could make specific suggestions and recommendations to the Department of Agriculture that it can follow to improve and sustain the fishery in the region in the future.

The discussion will last about 1 1/2 hours and will consist of about six to seven people like yourself. Refreshments will be available.

I will be leading the discussion. If you have further questions, feel free to call me at (phone number) or email me at (email ID).

Thank you for your cooperation. I hope you participate.

Sincerely,

_____

Moderator's name and signature

Sample focus group questions

Welcome! My name is [moderator's name], and I am affiliated with [office or department]. Assisting me is [name of assistant moderator.]

Today's discussion will be about fishery management in Tonle Sap region. The objectives of the discussion are to assess the general situation of the fishery in Tonle Sap region of Cambodia and identify strategies for its future management. There are no right or wrong answers, only differing points of view. Therefore, feel free to say what you think even if it differs from what was already said. We will be recording our discussion to be sure that we do not miss any comments. No names will be attached to any reports we develop based on this focus group.

We will be on a first-name basis, so let us go around the table and get to know one another. Please tell us your first name and whether you are involved in fish farming, and, if yes, share, in brief, your experience with fish farming.

1. Can you describe the situation of natural fish catch in your village 10 years ago? And compare it with the current situation? For example:
    a. Peak fishing period.
    b. Average catch per day.
    c. Size of fish caught and species.
    d. Fish price.
    e. Fishing regulation.
    f. Number of fishers (increase or decrease).
    g. Livelihood of fishers.
    h. Other (please specify).
2. From your experience/perspective, why does the natural fish stock keep declining? What are the major factors contributing to this?
    a. Illegal fishing?
    b. Overfishing?
    c. Loss of fish habitat?
    d. Other (please specify).
3. What kinds of activities do you observe in the Tonle Sap for curbing all fishery- destructive activities? Who are involved with those activities? Which activities are most successful? Why? Which are not working well? Why?
4. What do you think about the Community Fishery program? Do you think this entity plays a significant role in natural fish conservation?
5. What do you want to see in the future Tonle Sap fishery? What is your dream about the future Tonle Sap fishery?
6. How to achieve your dream?
7. What are alternative ways to ensure a sufficient fish supply in the future to meet the demands of fish consumption? Do you think homestead pond aquaculture is the way to increase the fish supply to meet future demand? Why or why not?
8. Did we miss anything?

    [Moderator presents a summary of the discussion.]

    Thank you very much for your participation and input.

References

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Tool 28: Write Extension Evaluation Reports and Share Results and Impacts

Evaluations are worthwhile when end users and stakeholders understand the results and take timely actions on recommendations. Utilization of well-crafted reports will increase if they are easy for stakeholders to understand.

A good evaluation report has all the details about the what, when, where, who, why and how of evaluation. It has four major sections:

Introduction section provides the background. It includes information about the development problem being addressed, the stakeholders, and the project's goals, objectives, and expected outcomes or impacts.

Methods section contains the study design, its population, the sampling technique used, and data collection and analysis methods. You need to explain why you followed the methods you used and list any limitations.

Results section includes findings, with tables and charts or quotes depicting the data, with interpretation.

Conclusions and recommendations are very important to the readers. Many stakeholders do not have time to read the full report. They tend to read the executive summary and conclusions and recommendations. If they find the findings interesting, they may go to the full report.

Frechtling et al. (2002) offered the following tips on how to write an effective evaluation report:

- Think about the goals for writing evaluation reports, such as communicating the results with the beneficiaries, development partners and/or funding agency.
- Reports should be clear, candid and appealing to readers, especially the intended readers. Therefore, think about who the audiences are, their knowledge of the topic, and the time that they are likely to spend reading reports.
- Use active rather than passive voice as much as possible.
- Organize the report in easy-to-find sections, and label the sections with informational headings.
- Write an extension evaluation report as quickly as possible after data collection, and inform stakeholders of the results. Timely reporting is important to ensure that the information remains relevant and concerned parties can act in a timely manner.

Avoid putting in the summary or abstract highlighting procedure, major findings, conclusions and recommendations.

Include a description of the program, its purpose and procedures, a justification of the conclusions and recommendations.

If readers find something interesting in the summary or abstract, they may proceed to read the main contents.

- Evaluation results can be presented in many formats and forms. You can report key evaluation findings well before you finish writing a comprehensive evaluation report. You can use PowerPoint presentations, public meetings, newsletters, poster sessions, question-and-answer periods, bulletins, brochures and websites to report findings.
- If the evaluation reveals negative findings -- for example, if very few farmers participated in vegetable demonstrations and demonstrations were not effectively presented -- you can describe likely reasons why the program did not or could not succeed, such as limited budget, untrained staff members and unsuitable timing for farmers.
- Present negative findings in a way that promotes learning and improvement rather than feelings of failure. You write for the stakeholders. Think from their perspectives and be sensitive to their feelings.
- Present positive findings first. Use positive terms, such as "accomplishments". Help stakeholders think of themselves as problem solvers.
- It's always a good idea to ask your peers to comment or provide feedback on your report, and to proofread the final version before sharing it with stakeholders.

Duncan (2000) offers the following tips for effective writing:

- Know your audience.
- Write for easy reading. Use short and familiar words.
- Write short sentences. Avoid using eight words where one will do.
- Keep short paragraphs.
- Keep information in order.
- Avoid common grammatical pitfalls.
- Check what you have written; better yet, have someone else look it over.
- Use active voice.
- Read about writing.
- Practice!

References

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9. Communication in Extension

Communication is the process by which we share information with one another to reach a mutual understanding. The communication process involves four key elements: a **source or sender** sends a **message** through some **channels** to a **receiver** (Maunder, 1972; Oakley and Garforth, 1997).

As Axinn (1997) points out, the essential role of agricultural extension services is to promote innovations to farmers or end users through education. An innovation could be a new idea, a practice, an object or a technology, such as improved seed, chemical fertilizer, use of irrigation, or adoption of various postharvest technologies such as storage, processing, packaging and marketing. Effective communication requires carefully examining the credible source of the information, identifying the right message and selecting the most appropriate information channel to reach the target audience -- farmers, in the case of agricultural extension.

Communication research suggests that diffusion of innovation and its adoption vary depending on the sociocultural context of the community, characteristics of the decision-making unit or the target audience, and perceived attributes of the innovation (Rogers, 2003). In general, most people hesitate to adopt a new idea or practice even if they are aware of it because of:

- Uncertainty about possible benefits or unwillingness to take risk.
- Inadequate knowledge about the new practice or innovation.
- Concern about the trustworthiness or credibility of the information source.
- Lack of resources to acquire the inputs required for adoption of the new idea or innovation.
- Lack of a market in which to sell new products.
- Social norms, values and beliefs that do not support adoption of the new idea or innovation.

To effectively promote an innovation to intended users, the extension educator must understand the theory of communication and the innovation decision process -- how an innovation or new product is spread within a social system, and how communication about it gains momentum. The innovation decision process involves several steps: an individual passes from first knowledge of an innovation to forming an attitude toward the innovation to a decision to adopt or reject it (Maunder, 1972; Rogers, 2003). If the decision is to accept it, the next step is implementation of the new idea, and then confirmation of this decision. An innovation decision process modified after Rogers (2003) is shown in Figure 16. This model consists of four main stages:

Knowledge — a person (or decision-making unit) becomes aware of an innovation and gains some understanding of how it functions.

Persuasion — a person (or decision-making unit) forms a favorable or unfavorable attitude toward the innovation.

Decision — a person (or decision-making unit) chooses to adopt or reject the innovation.

Confirmation — a person (or decision-making unit) evaluates the results of an innovation decision already made.

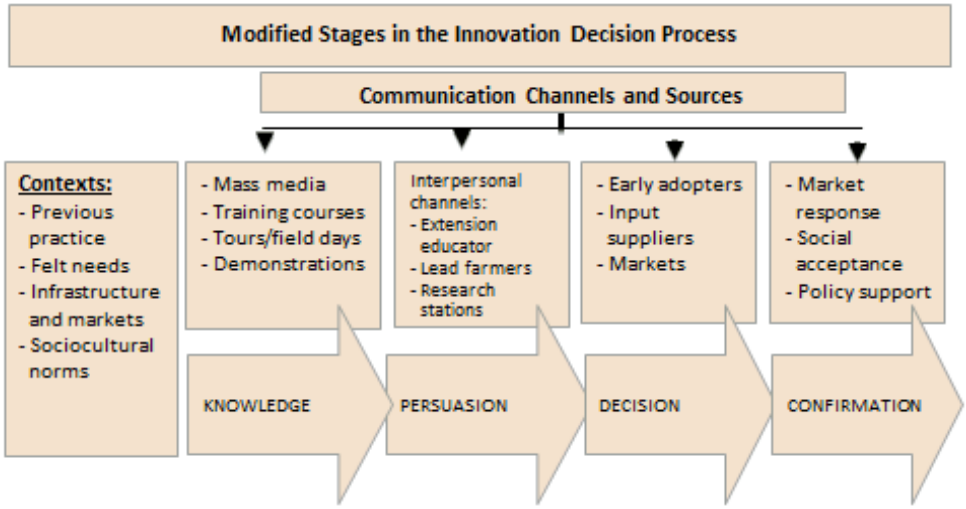

Figure 16. Model of innovation decision process (adapted after Rogers, 2003).

Socioeconomic characteristics, personality traits and communication behavior of the members of a social system may influence the knowledge of a new idea or innovation. Generally, those who are first to learn about a new idea or innovation are better educated; have traveled outside their communities; use mass media such as radio, TV or Internet for information; and have higher social status and wider social networks than those who hear about it later.

Persuasion is the second stage of the innovation decision process. After becoming aware of or knowledgeable about a new idea or innovation, people become psychologically involved with the innovation and seek additional information about its attributes, such as:

Relative advantage: What are the cost and economic return of adopting the innovation, compared with current practice?

Compatibility: Is the innovation compatible with existing practice or culture?

Complexity: How complex is the innovation? Simple practices are adopted more quickly than complex ones.

Trialability: Can the innovation or technology be tried out or experimented with or adopted on a limited basis before its full adoption?

Observability: Can people observe the results or benefits of adopting the innovation? The degree to which the results can be visible is important for its adoption.

The third stage is the decision stage, when, on the basis of personal assessment of the various attributes of the new idea or innovation, a person decides whether to adopt or reject the innovation or new technology.

The last stage in the innovation decision process is confirmation. If the new idea or innovation is adopted and felt to be beneficial, adoption could be continued. Otherwise, it could be discontinued. Similarly, if the decision was not to adopt the new idea or innovation the first time, the person may adopt it at a later time after observing results at a neighbor's farm, or s/he could continue to reject it.

Extension workers should recognize that adoption of new ideas and technologies happens in stages. Some people adopt the new idea or technology early, some adopt late, and others do not adopt it at all. In general, a few people will try the innovation at first, then -- if it seems to have benefits -- a larger number will try it, though a few may never accept the new idea. Depending on when (how early/late) people adopt a new technology, diffusion and adoption scholars such as Maunder (1972) and Rogers (2003) have classified adopters into five categories:

Innovators: Those who are first to try out a new technology are called innovators. They are the risk takers and adventurous, eager to try new ideas and, therefore, the first to adopt an innovation. Innovators represent about 2.5 percent of a total population.

Early adopters: The next to adopt a new technology are called early adopters. They are considered the opinion leaders and those who have earned great respect within the community. They represent the next 10 percent to 15 percent of the population.

Early majority: These people adopt new ideas only after intense thought and deliberation. They represent about one third of the total population, and they take the overall adoption rate up to around 50 percent.

Late majority: Skeptical in nature, they adopt new ideas on the basis of either economic necessity or social pressure. They represent about another third of the total population. They bring the overall adoption rate to around 85 percent.

Laggards: Those who join last are called laggards. They are the traditionalists, rooted in the old practices, and they base their decisions on what was done previously. They are always suspicious of new ideas, innovators and change agents. Laggards make up about 15 percent of the population.

In general, innovators and earlier adopters have more formal education, higher social status (larger farms, higher income), greater exposure to mass media, greater exposure to interpersonal

channels of communication, greater extension agent contact, greater social participation (e.g., community leader, farmer association leader) and contact with persons outside their community than later adopters.

It should be noted that an adoption process is situated within a social system, so social factors such as culture, taboos, norms and values influence the adoption rate. Innovations that are complex and require significant investment for adoption tend to be adopted slowly. The presence of innovative opinion leaders whom others look to for direction also affects the adoption rate. So, for an extension worker, working with opinion leaders in a village enhances the possible scope of adoption. Each adopter category possesses unique characteristics and requires different strategies to influence. It is important that extension workers recognize individuals in each of these adopter categories to achieve successful adoption of innovations.

Communication channels play an important role in the innovation decision process. Channels are interpersonal, group or mass media. Interpersonal channels (e.g., face-to-face meetings, telephone conversations) require a long time or many staff members to reach a large audience. Group channels such as farmers' training classes, study tours and farmer field schools can reach more people more quickly, but they may not reach all the members of the social system. Mass media channels -- radio, television, newspapers – can reach a large audience with the same message in a relatively short time period.

Note that certain communication channels are effective at different stages of the innovation decision process. Mass media are useful in creating awareness about an innovation (knowledge stage). Interpersonal channels are relatively more important at the persuasion or decision stage of the innovation decision process (Rogers, 2003).

Many extension services and development projects use the rate of adoption -- i.e., the speed at which target beneficiaries adopt an innovation -- as a criterion for evaluating the effectiveness of agricultural extension. It should be noted, however, that the rate of adoption varies with the attributes of the innovation or technology being disseminated. Achieving 100 percent adoption may not be a realistic goal. Our experience suggests that 30 percent to 40 percent adoption signals that it's time to move out of a village or move on to the next innovation/technology because the new idea or innovation will then spread itself through peer pressure or social networks.

Lessons for extension workers

When you work with an extension program for technology transfer:

- Use mass media for raising awareness of the innovation or new technology.
- During the persuasion stage, interpersonal channels are effective, so maintain as much personal contact with farmers as possible.
- Find out if your district or village has innovator farmers (early adopters, opinion leaders) and work with them to disseminate the innovation or new technology.

- Set up method and result demonstrations of new practices at innovators' and early adopters' farms.
- Meet with early adopters on a regular basis.
- Hold meetings with farmers' groups, women's groups and youths.
- Work with local organizations (e.g., farmer associations, mothers' groups, etc.).

Always be professional – tell the truth, demonstrate what you want the farmers to do, document what changes are taking place and report what you accomplish.

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Good Practice Tools for Communication

Tool 29: Make Effective Presentations

Communication is a human activity -- it begins and ends with people. Communication is effective when the message sent by a source or sender reaches the receiver and they reach a mutual understanding. Communication is ineffective if the message is unclear or misunderstood. Effective presentations minimize the potential for miscommunication between the sender and the receiver.

Elements of Effective Presentations

Major elements of presentations such as public speaking include the following (Morgan, 2000):

Determine your audience: Who are your audience? What are they interested to hear? What is their background? Whom do they represent? What is their educational level? How long have most of the members been with this group? This knowledge about the members of your audience will allow you to modify the presentation according to their needs or interests. For example, progressive farmers react differently than traditional farmers when adopting new varieties or improved inputs.

Preparation is essential: Decide on your presentation topic. What is your message? How can you convey it clearly and simply? Write down your thoughts and read them carefully. Make bullet points; include related success stories to inspire your audience.

What is the medium? Are you speaking to individuals, an organized group or a large mixed audience? Are you presenting messages at a mall, fair, trade show, conference or professional meeting? Are you writing for a newspaper or magazine? Your message must suit the medium. This tool focuses on how to make effective presentations in a group setting.

How to prepare a presentation

A presentation consists of three parts: opening, body and conclusion (Bell and Shire, 2012).

Opening

- Welcome everyone and ask if everyone can hear you well.
- Grab the audience's attention and get them focused on the topic of the presentation by asking a question, citing a relevant quote from a well-known person, telling a short story or using visual aids.
- Provide an overview of the presentation. Clearly state the purpose of your presentation and why the presentation or the topic is important.

Body:
During the presentation, you need to:

- Create an informal atmosphere. Provide for and encourage audience participation.
- Establish your credibility early. Know the topic; write down the main points. Prepare an outline, if possible. Prepare PowerPoint slides or other audiovisual materials to support your content. Make sure visuals are clear and accurate.
- Organize your material in a logical sequence for easy comprehension.
- Identify the stories, data and/or illustrations to support each point.
- Use eye contact to establish rapport.
- Avoid using technical jargon as much as possible.
- Summarize every point before moving to the next point.

Conclusion
Stay focused on points you want people to carry away with them:

- Review the key messages you covered and spell out their relevance.
- End the presentation with a positive summary: finish with the benefit of the innovation, why change is necessary and how your audience can be the agents of change.

DOs and DON'Ts of a good presenter:

Present clearly: Key points make your message easy to follow. A long, rambling speech will be hard for the audience to follow, and learning will be weak.

Use eye contact: This makes the audience attentive and enables the presenter to see if the audience is losing interest, at which point you bring in an anecdote or maybe stop to ask a question.

Stand erect, walk around and move your hands: If you slouch and look tired, the audience's interest drops. If you look alert and excited about your topic, the audience is likely to respond in the same way.

Speak enthusiastically and clearly: To deliver a "loud and clear" presentation, project your voice so everyone can hear, and pause briefly at the end of every sentence. Mumbling will cause the audience to lose interest and miss the key points.

Use appropriate anecdotes and humor: A long speech gets monotonous and is easy for listeners to tune out of. Using real-world examples and funny stories keeps the audience listening because they can relate better to real situations than to abstract concepts.

Present logically: Organize the points you want to make in a logical manner and present them so that it's clear how the various points connect as part of an overall theme. This keeps the presentation focused and the audience attentive.

Use visual aids: Easy and clear to read aids help the audience follow the presentation and clarifies important points and concepts. In PowerPoint visuals, use large font sizes (sizes 28 to 32).

Dress appropriately: Wear bright and clean clothes to support the impression of professionalism and energy that you want to convey.

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Tool 30: Communicate Effectively with Community Leaders

Community leaders, whether formal or informal, are key stakeholders of an extension program. Strong and effective leaders help communities and organizations to succeed and develop (Lansdale, 2000; Scheffert, 2007). They have the ability to:

- Interact and build rapport with village people and establish good relationships with them.
- Understand the felt needs of the community.
- Motivate and organize people for the common good and promote participation in your program.

An important role of an extension educator is to develop community leaders who go on to become teachers for the other people in the community. With education, these local leaders acquire the attitude, ability and skills to be able to carry out the extension education and related communication responsibilities.

Useful advice

Instilling confidence in the use of new technology among local leaders is critical to the success of the extension program. The aim of your communications and interactions should be to enable them to be good communicators about the program. Provide them the background of your program and demonstrate the value of the new technology or practice, and show them how it works. They can then pass on the message effectively with community people during local meetings and functions.

According to Barrick (2012), extension workers should consider the following strategies while communicating with local leaders:

- Make brief, to-the-point presentations on on-going extension programs and activities.
- Use a variety of instructional techniques to communicate the extension message.
- Demonstrate the use of technology to communicate your ideas.
- Encourage them to ask questions.
- Relate the innovation or new technology to existing practices. Demonstrate how the new technology has immediate applications and benefits. When leaders see that, they are quick to adopt the idea or practice and share the benefits with their followers.

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Tool 31: Organize Extension Campaigns

An extension campaign is a strategically planned and problem-solving program aimed at increasing the awareness/knowledge level of a group of target beneficiaries, and changing their attitudes and/or behavior toward favorable adoption of a given idea, technology, product or practice (Adhikarya, 1994). The extension campaign requires field-tested messages, a variety of media to disseminate information, trained personnel and communication intervention on selected topic(s).

Advantages

- Is usually need-based and helps solve problems.
- Reaches and informs a large number of people.
- Employs cost-effective multimedia materials.
- Promotes a participatory planning approach.

Limitations

Two-way communication between an extension educator and his/her audiences is usually lacking. A campaign requires very careful planning and experts' advice and supervision.

Steps to conduct an extension campaign

The following steps are adapted from Nehiley (2001) and Adhikarya (1994).

Step 1. Identify the problem and assess the information and educational needs of the clients

- Conduct strength, weakness, opportunity and threat (SWOT) analysis with lead farmers and key informants.
- Prioritize the problems and solutions, define and finalize the goals and objectives.
- Identify and analyze the clientele and categorize (segment) intended recipients, if needed.

If you plan to educate and inform farmers in a village about vegetable production, farmers who are less educated may have different educational needs and media preferences, so you may need to use a variety of campaign strategies to educate this diverse group of clients. The farmers' field day or demonstration may be suitable for less-educated farmers, but mass media (e.g., Internet, television, radio, newspapers, etc.) would work for educated farmers.

- Prepare a clientele inventory: audience members' educational levels, farming practices, cultures, languages, ethnicities, and the best season of the year and best day and time for a campaign to reach them, etc.
- Develop a strategy for the campaign, including the information to be provided.

Step 2. Design message(s) to send out

Rodekohr (2000) offers the following tips:

- Messages should be appealing to the clientele, distinct or eye-catching and memorable, focused and of appropriate length.
- Message should be simple and easy to articulate.
- Pretest a message with a small group before taking it to the larger audience.
- Produce message materials.
- Select media to be used in the campaign.
- Train staff members to conduct campaigns.
- The persons who deliver the message should be confident and articulate and understand the focus of the campaign well.

Mass media: They are good for informing and creating awareness among broad audience groups.

Interviews: Media interview guarantees coverage. You or the person who delivers messages needs to develop interview skills.

Press conference: It works well if the topic is of high public importance and interest. It can draw media representatives, who can help propagate the message quickly.

Direct mail: It helps messages reach targeted audiences. Examples of direct mail are newsletters, publications, flyers, letters and postcards.

Promotional tools: Billboards, posters, stickers, etc., are used as promotional tools. They help messages reach the targeted audience.

Step 3. Launch the campaign

- Begin with something dramatic and interesting that attracts a large number of people and draws audiences' attention (Kumar and Hansra, 2000). For example, involve a celebrity, political leader, leader of civil society, college and/or university dean or faculty member in launching your campaign.
- Document everything: what you do, who participates and how members of the target audience respond to the campaign.
- Also ask for feedback on the campaign from your staff members and peers.
- Combine these and prepare a report.
- Share the report results with your staff members, peers and stakeholders.

A poorly planned campaign will confuse the audience, drain your staff and your resources (Rodekohr, 2000). Therefore:

- Plan wisely.
- Identify the audiences you want to reach.

- Discuss what message they want and/or what you want them to do with the message.
- Select media that the target audiences have access to.
- Select and/design the message(s) that suit your audiences.
- Evaluate the campaign outcome.

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Tool 32: Write for Newspapers or Mass Media

As you work in the field, you'll want to share best practices and also publicize an experiment that led to outstanding results, a new tool that was developed, or a local success story about overcoming some obstacle or hindrance beyond the limits of the village or district. Newspapers offer an opportunity to widely disseminate such knowledge or information. It is a space where you can share facts or experiences, and it reaches thousands, both on paper and through the Internet.

Newspapers commonly carry two kinds of stories: news and features stories.

News articles: These stories report the basic facts about an event in the order of their importance, from most important to least important. They focus on the who, what, when, where, why and how of an event (the five Ws and the H) (Marks, 2000).

Feature articles: These are generally longer and more in-depth than news articles, and they often present multiple perspectives on one subject. They provide the writer more creative options than the standard news story.

Writing for newspapers and magazines is essential for communicating with the general public. McCabe (2000) and Marks (2000) offer the following tips for effective communication through mass media publications.

Components of a News Article	
Headline	The bold letters you see at the top of a story. It gives the basic information about a story. Headlines should have only a few words and no unusual abbreviations. A headline is more than a label – it actually says something about the story.
Subheadline	A phrase below the headline that gives more details about the report.
Byline	Writer's name.
Dateline	Gives the date and the location where the events in the story took place.
Lead	The first sentence in a news story summarizes the most important information. It may address any of the "five Ws and the H" -- who, what, where, when, why and how. The rest of the story expands on the information in the lead.
Who is it about?	Name the people involved and identify them by occupation, place of residence or other role in the story. e.g., the farmers who cooperated in a new extension program with support from a local leader, and the staff members who worked with them.

Where did it occur?	The village or district. If a demonstration of new seed varieties led to adoption by others in another village, both deserve mention. A demographic profile is helpful to understand the village, if you are writing a feature story.
What happened?	If you introduced a drought-resistant crop in a drought-afflicted area, contrast then and now to show what has changed.
Why did it happen?	Here give the details. Why was the village chosen as a site? How long did it take to see the results? Was the program for a single purpose or part of a series of development initiatives with an even broader goal?
How did it happen?	How did people decide to participate? How many people gained? Who led the process? Are evaluation results available? (Note: the answer to any of these questions could be the lead, depending on what aspect of the project you wish to focus on.)

According to McCabe (2000) a newspaper article generally contains three sections:

The **first** paragraph is referred to as the lead (pronounced "leed")**.** It is made up of one or two sentences that summarize the main facts of the article. It may tell one, some or most of the five Ws (who, what, when, where and why) and the H (how). The first paragraph is what makes a reader read the rest of the article. Make it "catchy" by putting the most exciting or interesting facts here.

The **second** paragraph or section contains details about the topic or the incident, often including quotes from beneficiaries and description of the process.

The **third** paragraph or final section includes less important information. Remember, this section could be trimmed by the editor to fit the newspaper page space. This is why the most important information appears first.

- Use simple language.
- Be objective, and stick to facts.
- Write concisely and to the point.
- Keep emotions and opinions out unless they're in direct quotes.

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Tool 33: Make Good Use of Information and Communication Technologies and Use Web-based Resources

Information and communication technologies (ICTs) are technologies that help people access or provide information. In recent years, ICTs such as mobile phones, Internet, radio and television have been popular. They reach a large number of people in a short time. ICTs are becoming credible, relevant, reliable, timely and cost-effective sources of information (Anderson and Feder, 2007; USAID, 2012).

There are several advantages and uses of ICTs in extension. Aker (2011) and MEAS (2011) list the following:

Advantages of using ICTs in extension

- Improve the quality of extension services by providing timely information on new technology, input supply and markets.
- Increase speed of information dissemination and services delivery.
- Help store information for future use.
- Help people and institutions to network with one another.
- Useful tools that trainers can use in training.
- Effective for follow-up on extension programs.

Bell (2015) suggests that extension workers should consider following three factors (called "AID") while selecting social media in extension work:

Awareness: Do people know about your information.

Interested: Do people want to learn more?

Doable: Can people easily try it?

How to use ICTs

- Identify the clients and understand their demographics, including their sociopolitical contexts, farming systems and diversity.
- Identify clients' information and communication needs.
- Select appropriate ICT tool(s).
- Train yourself or your staff members to use select ICTs.
- Design and test the message.
- Deliver the message.
- Evaluate the outcome and/or impact.
- Improve and update the message and the programs.

As an extension educator, you need to understand:

- The local ICT policy.
- The status of the rural connectivity of ICTs.

- User fee, if any.
- Existing communication channels and knowledge sources.
- Lessons from previous information dissemination and networking efforts involving ICTs (Rudgard et al., 2011).

Innovation forums where extension workers, farmers and other stakeholders interact and foster partnership and collaboration benefit from ICTs, and, therefore, improve extension services.

Types of ICTs

Cell phones, radio, television, videos, computers, smart devices and the Internet are the common ICTs currently in use. Your audience may use one or many of these devices to access information. You should know which devices would work the best where and why to effectively carry out your extension tasks.

Cell phones

Cell phones are getting extremely popular among people of all walks of life, including farmers and extension workers. Cell phones are mainly of two types: basic and smart phones.

Cell phones can be used for: voice to voice -- call and seek information about market prices, input availability, advice to control and/or treat plant diseases and pests, etc.; voice messaging; texting; video messaging; and accessing the internet. Most extension workers and farmers in developing countries use voice-to-voice services only.

Cell phones are relatively cheap to use. Consumers do not need any advanced training to use them. However, poor network connections and power shortages to charge cell phones limit their usage.

MEAS (2011) offers following tips on how to effectively use cell phones in extension:

- Keep farmers' input suppliers' and experts' cell numbers handy. Remember that not all farmers have cell phones. You may have to reach them using other media.
- Provide your cell number to farmers and stakeholders.
- Respond as soon as you can to the calls you receive.
- Be polite and receptive to others when you talk to them.
- Thank people who call you or who receive your call.
- If you are sending texts or voice messages, follow the principles of effective communication -- i.e., use simple and clear language, remain focused on the issues, seek feedback, etc.

Radio

Radio is a mass communication tool of one-way communication mainly used to create public awareness (King, 2000). Radio is popular in rural villages. Messages can be programmed in local languages. This makes radio an effective tool to cater to the educational and information needs of the local people. Most nations broadcast agricultural programs over AM and FM stations.

Radio programs air at set times, so there is no flexibility in time to listen to messages (Oakley and Garforth, 1997). It is dominantly a one-way communication medium, but in recent years some radio stations have initiated question-answer forums.

How to Use Radio

Follow these five principles suggested in MEAS (2011) to use radio as a communication tool:

- Focus**:** Understand your farmers/audiences. Messages should be appealing, relevant and helpful to address farmers' problems.
- Content and clarity: Focus on the messages you want to convey. Clearly present the key points. Messages should be simple and in languages that target audiences can clearly understand. Repeating the main points and providing context-specific examples augment the learning.
- Catch: The first few seconds of the message are very important to draw the audience's attention. So, design and present the message in such a way that audiences are attracted to it and listen to it.
- Pretest: Pretesting the message with a section of the audience helps you understand whether the message offers the intended information and, if not, provides feedback to improve it.
- Evaluation: Find out how useful the radio message was and whether the information was appealing and educational. You can also ask fellow extension workers to listen and seek their feedback on the messages.

In general, radio messages last 3 minutes or less. Listeners will lose attention if the message is longer. If possible, invite farmers to speak who have tried out or successfully adopted the new technology being promoted. Farmers generally believe their fellow farmers — they can speak their language and can relate to local conditions.

Social media

Social media such as Facebook, Twitter and YouTube are very powerful communication tools covering a large swath of the population, especially the younger generation (MEAS, 2011). Social media users share and inform of almost all their activities -- their work, achievements, life events, feelings, emotions, plans, hobbies — using a variety of message forms — pictures, drawings, audio, video, text, messages, etc. Social media are becoming increasingly popular among training and educational institutions, marketing firms, sellers, buyers, input suppliers, civil society, and sociopolitical and cultural groups. Because social media are emerging as powerful communication tools, extension workers should be able to use them for extension work. They are quick, they can use photos and other message forms, and they are interactive. Not all messages in social media come from reliable sources, however.

Here are some tips from MEAS (2011) on how to use social media:

- Identify the audience: Social media may not be appropriate to communicate with older audiences.
- Coverage: Social media are useful to communicate with a large number of clients, useful as an announcement platform and useful for open dialogue.
- Frequency: You have to use social media regularly and frequently to get the most out of them.
- Simplicity: Keep messages short and simple. Filter out information that you deem inappropriate to your audience. Block links with bad contents.
- Build trust: Respond in a timely manner -- this will help build trust.
- Think positive: Respect other members' idea and opinions.

Video and TV

Videos and televisions are popular tools for information dissemination and to promote learning. Limited access of farmers to TV, fixed times for broadcasting information and one-way communication are some limitations. MEAS (2011) offers the following tips for extension workers to consider while using TV and videos in communicating with farmers:

- Understand the audience and learn about their educational and information needs. Know their age group, sociocultural backgrounds, educational level, farming system, etc.
- Develop a simple and clear, usually 1- to 3-minute message.
- Produce video clips by yourself or seek the help of professional videographers and communication specialists.
- Pretest the message with some members of the target audience and improve the clip as they advise.
- Focus on your target audience and ensure that not only the message but also the music or other background that builds the message suits the target audience.
- When you or your staff members are in the field, take pictures and video the farmers' activities, behaviors and practices that you deem stand out and are worth scaling up or offer some lessons.
- Document each tape or footage or pictures set with speakers, places, dates, etc., so that people who developed the footage can be acknowledged and original sources can be identified.
- Seek out the advice of peers, staff members and potential participants on the best time to broadcast TV messages.
- Evaluate the message and its contents by asking peers and real audience members/farmers for feedback.

Computer and Internet

Computer and Internet communication helps generate, store, update and distribute educational information in various forms -- audio, video, texts, graphics, etc. -- and can reach a large number of consumers.

Major limitations of these ICTs include: only a few farmers in developing countries have access to computers and the Internet; farmers cannot physically see a technology; and most of the information available on the Internet is produced in the developed countries and is in languages that farmers in developing countries do not understand.

You may follow the tips suggested by MEAS (2011) on how to use computers and the Internet to communicate your message effectively:

- Know your audiences and identify their information needs.
- Keep messages simple, short and clear.
- Ensure that the message comes from a credible source -- e.g., research station.
- Train yourself or your staff to design and upload messages to the Internet.
- Train farmers how and where to access information on the Internet.
- Ensure that Internet links in other forms of communication works. Make sure the Internet access is available in your area.
- Seek feedback and improve the message as new issues and information unfold.
- Think of and act early on how you will sustain the use of the Internet as a communication tool.

The "Rice Knowledge Bank," launched by the International Rice Research Institute, the Philippines (ADB, 2010), is an example of the use of the Internet at the regional level to teach rice farmers of developing countries about improved rice technologies. More information on Rice Knowledge Bank can be found at www.knowledgebank.irri.org.

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